PASSIVE SMOKING

AT THE WORKPLACE

Reassessment and analysis

from a medical and legal aspect

Collected papers and contributions to discussions from the specialist conference "PASSIVE SMOKING AT THE WORKPLACE" on 31st March and 1st April 1977 in Munich, arranged by the Bavarian Academy for Industrial and Social Medicine.

The meeting was held under the auspices of the Bavarian State Minister for Labour and Social Order, Dr. Fritz Pirkl.

MR. R. MURRAY - COPY NO. 4.

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PREFACE

Ever since the foundation of the Bavarian Academy for Industrial and Social Medicine in 1968, the presidency and the board of curators are constitutionally not only entitled, but also obliged, to express an opinion on current problems of industrial and social medicine.

This was generally done in the form of special meetings where experts in a particular area spoke first. The topic was subsequently discussed by all participants.

In this way, the Academy has in previous years considered topics such as "Nervous and physical stress at the workplace", "Rehabilitation from the aspect of a medical practitioner", "Work place decree", "Medical problems in office jobs", and subsequently published a report of proceedings.

In the last few years the topic "PASSIVE SMOKING AT THE WORKPLACE" has received increasing attention by the public. In the light of this the presidency of the Academy was moved, after consulting with the Secretary of State Dr. Fritz Pirkl, to undertake an analysis and reassessment by legal and medical practitioners. We now again present, as we did with the other topics, the proceedings to the public, society and state.

We hope that the statements and contributions to discussions made here contribute to a clarification of the state of affairs, and to a factual consideration of the emotionally charged discussion.

Munich, October 1977

Prof. Dr. med H. Valentin,
President,
Bavarian Academy for Industrial
and Social Medicine

Dr. med. W. Brenner,
Secretary,
Bavarian Academy for Industrial
and Social Medicine

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WELCOME AND OPENING

by the president of the Bavarian Academy for Industrial and Social Medicine, Professor Dr. med. H. Valentin, Erlangen.

Honourable delegates and senators, honourable presidents, directors, chairmen and chief secretaries of various institutions, honourable chief staff surgeon, dear colleagues from the legal and medical specialist areas, the ministerial offices of the Federation and the States, dear colleagues from medical practice, dear colleagues from the presidency and the board of curators of the Bavarian Academy, dear ladies and gentlemen from the press, ladies and gentlemen.

On behalf of the presidency of the Bavarian Academy for Industrial and Social Medicine in Munich, it is my pleasant duty to welcome you today most cordially to this conference. Special thanks go to the State Minister, Dr. Pirkl, who was kind enough to take up the patronage. The Secretary of State, Dr. Vorndran, will honour this session with his presence. He is unfortunately delayed at this moment, but he will arrive at a later point in time.

I should also express my sincere gratitude to all speakers and organisers of this meeting, in particular to the medical director Dr. Brenner.

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Thursday, 31st March 1977

Chairman: H. Valentin, Erlangen

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PASSIVE SMOKING AT THE WORKPLACE -
ANALYSIS AND REASSESSMENT
H. Valentin and H.P. Bost

In the last few years, the topic passive smoking at the workplace has found increased attention in many areas of the public sector and has achieved considerable significance. For this reason the chair of the Bavarian Academy has decided to conduct a specialist dialogue between lawyers and doctors, public health, politicians, tariff partners and press agents. The purpose of this interchange of opinions is the establishment of an analysis and reassessment of the current state of fact and knowledge.

No ridiculing or exaggerating is desirable. Furthermore, in the interest of the subject area, controversies or defamations should be suppressed. The aim is to establish an appropriate representation of the problem from the legal and medical aspect which is close to reality, so that the public and politicians may be better informed.

As announced in the programme, a few short papers by well known experts from medicine and law will provide an initial introduction to the problem. At the conclusion of each paper there will be the opportunity to discuss the given facts exhaustively and comprehensively. It is intended to publish the papers in the form of a brochure.

Remarks made during discussion will be taken down by two parliamentary stenographers and recorded on tape. Subsequent to documentation, participants in the discussion will have the opportunity to revise, so that all concurring and controversial remarks may also be published.

In accordance with a decree of the Bavarian State Office for Labour and Social Order of the 14th May 1973, the Bavarian Academy for Industrial and Social Medicine is an instrument of public law with no legal capacity. According to §2, it is the task of the Academy, as a meeting place of science and everyday practice in conjunction with establishments of teaching and research, to

a) effect the interchange of results and experience

b) encourage the practical application of scientific results

In view of this state of affairs, the chair of the Academy, after consultation with the State Minister on 16.12.1976, felt legally empowered and authorised to take up the theme "passive smoking at the workplace" which is at present discussed controversially in public, and to initiate this specialist forum.

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1. Significance of passive smoking at the workplace

The topic "passive smoking at the workplace" may be sketched as follows from the medical aspect:

In accordance with the latest evaluations of the Federal Bureau of Statistics, it may be assumed that there are presently about 24.4 million employees, who are occupied in very different sectors of the economy. This figure does not take into account employees in rural jobs.

The federal government has established that at present 43% of all persons aged between 20 and 65 years smoke in the federal republic. Of this age group, 60% are males, 27% are females. These figures show that approximately every second employee is a smoker. Many employed smokers also smoke at their place of work. This assumption is well founded because on the one hand, the number of work places where smoking is not possible for safety reasons or the type of activity, is relatively small; on the other hand, smoking at the workplace is itself viewed as a possibility for relaxation. Smoking is recognised as the reason for short term interruptions of work ("stop for breath").

An Emnid representative poll carried out at Cologne at the request of the federal office for health education yielded the following trends:

Whereas up to 1970, 41% of the population above 16 years were regular smokers, only 36% of persons above 14 years admitted to being smokers in 1976. According to this investigation, the proportion of male smokers of 51% is significantly higher than the female proportion of 22%. Compared with 1970 however, a recessive tendency is discernible amongst male smokers. The proportion of female smokers is constant.

Now in quantifying the problem, one must not make the mistake of generally classifying those persons shown in the statistics as non-smokers, as passive smokers in danger of health impairment. Basically, this problem depends on many factors. Local and temporal circumstances must be taken into account, but also the requirements of the occupational activity, the method used to run the business, organisational structure and many other factors. Thus passive smoking at the workplace represents a sporadic phenomenon which, from the aspect of the natural sciences, cannot be quantified accurately. It is hardly likely that epidemiological and statistical investigations will yield relevant results in these circumstances. In order to establish the effects of passive smoking at the workplace, it was thus absolutely essential to carry out experimental studies with simulation equipment, as practised by several researchers in an exemplary manner.

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2. Occupational world and environment as exogenous harmful factors

In occupational and environmental medicine, the exogenous cause of troubles, diseases and ailments has received continually increased attention. The relationships between cause and effect play a more and more important role in the State, the public and in society. Basically, as consequences of exogenous harmful factors, acute impairment, medium-range effects and long-term effects up to the generation of cancer and mutations and teratogenesis, are under discussion. The nature of the detrimental substance, its pathological mechanism and the intensity of its effect and the active time span, are important. In this context we distinguish between a relationship

a) in the sense of origin, i.e. the diagnosed ailment is, at least with some probability, initially attributable to the event causing the damage.

b) in the sense of deterioration: here we must check how far the further development of an already existing ailment was influenced by a deleterious event

Here one distinguishes between the following types of deterioration:

a) non-permanent deterioration

b) permanent limited deterioration

c) definite deterioration

All the recent results relating to exogenous harmful factors in the occupational world must not be allowed to disguise the fact that longer life expectancy, civilisation and life style may cause related ailments, chronic diseases and wear effects.

3. The concept of cause valid in accident legislation and hence, in occupational medicine

When problems of cause and effect are discussed in the occupational world, it is first of all necessary to consider more closely the concept of cause which is valid in accident legislation.

Cause in the sense of this theory is merely the condition which, due to its special relation to an event, has significantly contributed to the occurrence of the latter. If several circumstances have contributed to an event, then they are legally equivalent co-causes only if they are approximately equal in significance and effects for the occurrence of an event. If superior significance is attributable to one of the circumstances c.f. some others, then this circumstance is the sole cause in the spirit of the theory of a necessary condition.

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It must also be pointed out that in occupational health expert opinions, a sickness value is awarded only if the influence has reached such an extent that a functional capacity is significantly impaired, i.e. generally a decrease in earning capacity of 20% or more. In this context, several examples from the health science of occupational diseases may be cited.

4. Environmental protection and by-laws and explanations

In January of 1974, Emission Protection legislation was unanimously passed in the Lower House of Parliament. This legislation decrees that all technical plant which generates noise or impairs air quality is to be operated such that the neighbourhood or even the general public living some distance away from it, are not subjected to stress. As is well known, up to now the traditional idea prevailed that anybody causing, e.g. noise or air pollution, has to take precautions only when health impairment can be proved in the affected groups of people. This existing regulation has been superseded by a new principle. In formulating the latter, one did not go as far as the World Health Organisation, which defines impairment of general well-being as a danger to health. Instead, one has made concessions to the reality of the Federal Republic of Germany as an industrial nation. In the justification of the law it is stated that emissions must not cause significant disadvantages and nuisance in the neighbourhood.

In this context, an explanation of the Council of European Communities of the 22nd November 1973, regarding a strategy of action for environmental protection, is also of interest. In the appendix to this document, terms relating to environmental protection are defined. One distinguishes between criteria, qualities to be aimed for, and standards of environmental protection. The following definitions are of significance for our topic:

a) regarding criteria

1.1 The term "criterion" denotes the relationship between the emission load of an object and the risk and/or the extent of an undesirable circumstance or disadvantageous effect resulting from it.

1.4 The "risk" is the probability of the occurrence of disadvantageous or undesirable effects resulting from a given exposure in relation to one or more pollutions or loadings, irrespective of whether they are considered singly or in

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combination with others.

1.5 The "disadvantageous or undesirable effect" considered in this context may represent an immediate, intermediate, instantaneous, delayed, simple or combined effect on the object. As far as possible, risk and extent of this effect should be expressed quantitatively.

b) regarding qualities to be aimed for

2.1 The "quality to be aimed for" in an environment denotes the totality of demands which an environmental medium or part of an environmental medium must satisfy at a given, present or future, point in time.

2.2 In determining this aim, the following is taken into account:

a) a "basic protection level", by means of which it is established that man or some other object is not exposed to intolerable danger.

b) a "zero effect level", at which it may be taken for granted that no measurable effect is caused in the object.

c) regarding standards of environmental protection

3.1 "Standards" are set with the aim of protecting objects from exposure, or to keep exposure within limits. They may thus represent the means to realise or approach qualities to be aimed for. The standards address directly the responsible individuals or instrumentalities and define the degree of pollution or loading which must not be exceeded in an environmental medium, in an object, in a product, etc. Standards may be determined either through legal or administrative regulations, or mutual agreements or voluntary acceptance.

One distinguishes between the following standards:

3.2.1 "Standards of environmental quality" define, by legally binding means, those loadings which must not be exceeded in an environmental medium or part of a given medium in the environment.

3.2.2 The "products standards" define those limiting values with regard to the quantity of harmful substances or the degree of nuisance, which may not be exceeded in

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the composition, or during the emissions, of a product.

3.2.3 The standards for stationary plant are called "process standards" and need not be discussed further here.

In this explanation from the Council of European Communities, it is further requested that in all instances the criteria, aims and standards be checked continually, and be changed when necessary, so that allowances for scientific progress may be made.

5. MAC - Values, MIC - Values, etc., quality standards, limiting ranges, etc.

Over the last few years many national and international committees have established MAC - Values, MIC - Values, etc., quality standards, limiting ranges for many different substances and their compounds. For our purposes, the following two definitions are of special significance:

> The MAC - value is the highest allowable concentration of a working fluid in the form of gas, vapour or suspension in air at the workplace, which does not influence or excessively stress the health of employees at the present state of knowledge even in repeated and long-term exposure, the latter usually being 8 hours per day but on average, up to 45 hours working time per week.
>
> The MIC - value is a threshold value for environmental hygiene such that when it is maintained or not attained over 24 hours, does not lead to health impairment or irritation of the general public.

When establishing these values, standards and ranges, one usually starts from the wealth of experience from case histories and experiments in both the practice and teaching of occupational medicine. Results of animal experiments are also used. Now the continual difficulty here is to transfer results to humans in an appropriate manner. From the hygienic aspect, a factor of safety is presupposed once the dangerous range has been recognised, in order to eliminate health impairment as far as possible. In addition, the practitioner of preventive medicine proposes specific and well-aimed precautionary tests at workplaces where stresses which endanger health, occur. Under no circumstances can one consider, in employee protection, prevention completely separated and isolated from compensation. The systematic investigation of work backlogs in the modern industrial world by experts in occupational medicine has proved to be extremely valuable.

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The best proof is the decrease of many occupational diseases, as indicated in the accident prevention reports of the federal government, and the statistics of the central association of trade co-operative societies.

Recently, two other tendencies can be observed in various areas of the ecology. On the one hand, there exists a so-called market mechanism. Whoever proposes the lowest values of a harmful substance, whether expertly and appropriately founded or not, is able to obtain approval with the directive that not even the least health risk could be connected with it. On the other hand, the question of preparedness to tolerate stress at the workplace arises. In this respect, medicine can contribute only a few established scientific findings.

With both tendencies, the very nature of the problem is altered. The possible impairment of health is no longer under discussion, instead, attainable goals are proclaimed. In proceeding thus, one must however realise that one probably limits one's freedom, living space and sphere of activity inappropriately, unnecessarily and excessively with both demands.

6. The laboratory of occupational medicine and toxicology and its problems

The laboratory of occupational medicine and toxicology has nowadays at its command a wide range of methods for the qualitative and quantitative compilation of ecological standards, and for an assessment of the biochemical behaviour of toxic substances. The analysis of various inorganic groups of substances and organic compounds has been refined considerably over the last few years. In order to make it available to a wide range of users in spite of the cost of instrumentation, one tries nowadays to introduce into practice only a few techniques of analysis from the multitude of diagnostic possibilities. In doing this, as wide a spectrum of applicability as possible must be available to any one technique. This does not merely make the laboratory of occupational medicine more flexible in relation to the continual change of the occupational world and the continuous new introduction of potentially harmful substances. Many of the modern techniques also lose their subtle character, insofar as the analyst must be conversant with only a few basic methods, even although the problem is posed in variable and different forms.

Those methods of analysis which are used, must have been checked for analytic reliability criteria such as specificity, precision and correctness. In occupational toxicology, the criterion of the detectable limit is of special significance. Normally a harmful substance does not occur in an organism, or occurs, at worst, in extremely low concentrations.

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It was not until necessary detectable limits had been established for many harmful substances by the introduction of new analytical methods, that practitioners of occupational medicine were able to cope adequately with the problems of preventive medicine in early and detailed diagnosis. Securing biological problem material has proved invaluable in monitoring persons in various occupations exposed to harmful substances, and in estimating the individual loading or the degree of intoxication; such material is analysed with the aid of the most modern methods outlined above.

In this context, the concept of human monitoring or biological monitoring has attained great significance. It is primarily aimed at substances which show dose-effect relationships in humans. It is also possible to set up dose-response and dose-effect relationships. If this concept is carried out sytematically, we obtain information regarding receptive mechanism, type of effect, metabolism and possibly, particular organs likely to be damaged. Here it becomes increasingly obvious that a linear proportionality of dose and effect occurs over part of the range only. Minimum and maximum ranges frequently exhibit different behaviour; this is sometimes overlooked in a public discussion of the problems. We have reported elsewhere at length on advantages and limits of methods and results.

Nowadays many analytical/chemical methods are used in control tests at workplaces injurious to health. Here two other aspects should be noted:

a) Very many different inorganic and organic substances can be determined in the biological material. A complete status however is not possible for reasons of economy and efficiency.

b) Although many substances are taken up by the human system when subjected to the appropriate loading, they are either secreted directly or broken down through a metabolic mechanism without harmful effects. Hence relevance and specificity of damage patterns caused exogenously must be checked as well.

7. The area between health and sickness

Over the last few years medicine has recognised that the dual concept of health and sickness is no longer adequate. In particular, based on new scientific knowledge in many different special disciplines, the area between health and sickness has received increased attention. We have seen fit to define as follows for practical and clinical occupational medicine:

a) As always, in accordance with the World Health Organisation, health is defined to be a state which is not only characterised by the absence of sicknesses and infirmities, but also by the presence of complete physiological, mental and social well-being.

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b) We speak of stresses or loadings when the various parameters deviate from the norm, without leading to manifest impairment of health. As examples one can cite stresses at workplaces with essential and non-essential metals and their compounds, together with organic compounds, viz. the so-called xenobiotics. With noise influence, one speaks of irritations. Objectified and quantified effects are often transitory and may almost always be thought of as being reversible. These include transposition, adaptation and defence reactions of various kinds. Work capacity and vocational capability are almost always conserved. We are dealing with a phenomenon which the Americans call "Human Health Implications".

c) In the next bracket we include those impairments to health which are caused specifically by the effects of exogenous harmful substances. Very many different functional systems may be affected. These impairments have usually already led to more or less irreversible functional impairments, and may be accompanied by small to moderate changes in organs. In diverse functional and loading tests, deviations from the norm are evident; these may impair the normal efficiency spectrum from a small to a moderate degree. Work capacity and vocational capability are frequently maintained to a large extent and over periods of years.

d) In the case of sicknesses, infirmities and impaired health the fixed dynamic equilibrium of somatic, psychic and social factors is considerably and persistently disturbed. The structure and function of the various organs exhibit significant reductions in efficiency spectra. Health impairments may be manifest or latent, reversible or irreversible. In almost all cases, the individual's ability to work and his vocational capability are no longer assured in either the short or long term.

In recent years, this gradation of the area between health and sickness has shown up in our discussion of exogenous causes by diverse chemical or physical potential hazards, stress and distress, etc. and psychophysical effects.

In this context it must be noted that our population today does not only comprise healthy normal persons, but also 1 - 3% of people with a bronchial-pulmonary system sensitive to certain exogenous stimuli, together with many elderly persons and people with the most diverse chronic ailments and infirmities. This fact must be taken into account when discussing our topic, where we must differentiate between the work force and the total population.

8. The concept of "proven scientific knowledge"

When discussing cause and effect we must begin with the concept of "proven scientific knowledge". Knowledge with our topic may

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be considered proven only if:

a) it has been established by methodical research, i.e. plausibly and with appropriate evidence,

b) it has been tested with proven methods, i.e. with results which are repeatable at all times,

c) it has acquired general recognition in expert circles.

None of the three abovementioned criteria is in itself sufficient to be able to speak of "proven" in the sense of this definition.

When formulating problems of cause and effect, one must always begin with facts, proofs and experience, i.e. significant or predominant value is placed on the positive evidence connected with a cause. But also the concepts and their definitions and basic scientific rules and special analytical methods with their informative possibilities and limitations, must be considered more than in the past.

9. The public discussion of ecological problems

In recent years, public discussion of ecological problems has become rather lively not only in the Federal Republic, but also in other European states and the U.S.A. On the one hand, the interchange of opinions takes place between individuals and opinion groups, and between politicians and scientists on the other. It is well known that on the scientific and political side the concepts of task and goal, point of view and reality vary. Here the aim is to ask about given and possible existence, there the aim is to deduce and implement decisions. The scientist strives, and must strive, for truth or true facts, the politician for attainable or realisable possibilities.

On a federal level, there are now about 70 scientific advisory bodies in the Federal Republic to cater for the dialogue between politics and science. The following three conceptual models of mediation are under discussion:

a) The discretional model:

In this model the scientist opposes the decision-making politician quite independently and reveals possible alternatives to him. The politician makes a choice and must implement it decisively.

b) The technocratic model:

Arises from the fact that in our scientifically orientated

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world only one optimum method remains, once all possibilities have been run through, so that there is no longer any possibility for a range of decisions.

c) The pragmatic model:

This model recognises a critical interrelation, in which one side changes the formulation of its problem under the critical influence of the other in reciprocal fashion.

In a public discussion of ecological problems, medical knowledge about possible health hazards is always pushed to the foreground, and cited by some representatives of the most diverse specialist disciplines and some public groups, as the basis for requests and actions. When making diverse comments one should, however, not divorce oneself too much from the practical and clinical science of diseases. One must not dramatise or play matters down. Polemic or defamatory statements are utterly inappropriate. Information can best be disseminated only through factual and realistic representation.

Here we must point out that we have undoubtedly not a theory-deficit but a theory-surplus in ecology at present; in future, this must be processed by means of new investigations, results and knowledge.

At this point it should be remembered that there is no stage of life without a risk of danger. For this reason, one must insist that even in the field of ecology, only solid and serious results of research with corresponding proof should be recognised as proven scientific knowledge. Only when circumstances are quite clear is it possible for state, public and society to comment and probably, to take the necessary steps.

In this context, it should be pointed out that hypotheses and theories on the one hand and conclusions by analogy and speculations on the other might be appropriate for progress in medical science. The following four types of argumentation used to justify a relationship between cause and effect should be considered more carefully than in the past:

a) The duty of deriving a proof is often reversed and it is requested that authors of differing opinions supply proof of no health hazard. This does not represent a proof.

b) In the same fashion, one must reject on the basis of animal experiments and in-vitro tests the proposition that the suspicion of a possible health hazard for humans must be maintained until a proof to the contrary is given. Great wealth of experience exists in practical and clinical medicine, which has been compiled for decades. It is merely

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necessary to make any evaluation with reason, logic and objectivity.

c) It is often requested that legal steps be undertaken, using the argument that health hazards or even impairment of health could not be excluded. Here we are not dealing with a medical reason, but with the aim to decrease a health risk.

d) Today, suspicions are voiced, conclusions by analogy are arrived at and speculations are made, particularly in secondary literature. These may be appropriate to stimulate discussion. However, they always become problematical when made too early, interpreted haphazardly and coloured pessimistically, particuarly when medical facts established in the past are completely ignored.

Amongst our population and in our factories, all forms of argumentation only lead, without foundation, to insecurity, fright and fear. It is then hardly possible to prevent inappropriate and excessive reactions and emotions and ideologies in the ecological field. The stress or distress potential of the work force is then merely increased unnecessarily and inappropriately.

10. Conclusion

In conclusion, we are of the opinion that these medical and legal circumstances must be considered when discussing the topic "passive smoking at the workplace". As long as there is no proof of unambiguous and significant health impairment of passive smokers in present workplace situations, as in many other areas of life we should adhere to the following maxim:

Conservation and propagation of ethically defensible freedom, viz. freedom of the individual, not only people collectively. In short, one may state: "As much government as necessary, as much freedom as possible".

We should use reason and argument when discussing problems at the workplace and questions of the environment. The medical argument of health risks and health impairment must not be overdone. After all, even for Kant the ideal of responsibility and freedom was "to use one's good sense to the full, and publicly".

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ADDRESS

by the Secretary of State Dr. W. Vorndran of the Bavarian State Office for Labour and Social Order

Professor Valentin, Ladies and Gentlemen

You are probably aware of the fact that you are, here and today, continuing a discussion which was already in progress 300 years ago. Firstly, allow me to cite, in the manner of the well known TV serial "Pro and Contra", a Dutch doctor who was a physician at the court of the Prince of Brandenburg in the latter half of the 17th century, ".... Nothing is so beneficial, nothing is to be more esteemed, nothing is so essential and useful for life and health, as the smoke of tobacco...." and furthermore: "The never sufficiently praised smoke .... is good and pleasant from early morning till evening, when one rises and is sober, when one has eaten and before one intends to eat, in one word at all times".

This cleary was "Pro", but now "Contra": A spokesman of the disputation on tobacco on 26 March 1699 in the Societe Royale de Medecine in Paris painted the following horrific picture, which becomes even darker in the cumbersome German of the baroque age:

"Verily - What kind of bother are not those who begin to smoke tobacco, subjected to? I do not know which secret poison soon appears within, the stomach is attacked by nausea, and turned inside out by vomiting, the brain is burdened with giddiness, the head is made to turn about, the eyes are dulled, and see nothing else before them but death, the body is beset, now with shivering, then with heat, the heart abandons its function and no longer wants to give out blood and life to those parts where they are truly needed, and what is to be deplored most of all, the memory, that precious treasure, is the first thing which the smoke takes away with it, so that whoever wants to subscribe to this black company, must first of all be devoid of all senses and reason".

So the Chairman of this disputation, a Royal personal physician by profession, draws the following conclusion: "Therefore, the frequent usage of tobacco shortens life".

So much for active smoking of tobacco. More than 100 years later, a famous passive smoker becomes excited:

"Smokers pollute the air far and wide and choke every honest man who is incapable of smoking in order to defend himself. In fact, who is capable of entering the room of a smoker without experiencing nausea: Who can remain in it without perishing?" - and below a pen sketch done by his own hand he writes in the year 1812:

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"And even if you penetrated to the furthest place, to the smallest hut, - what good is it to you, you shall find tobacco and evil tongues there".

Perhaps he was unaware that two of his most famous contemporaries whose wit, diligence and creative power - apparently, one must speak of "creativity" nowadays - were by no means inferior to his own, viz. Schiller and Kant, smoked their pipe with relish. Otherwise he would not have made this rash statement: "Smoking causes dullness, inhibits thought and the writing of poetry, it is only for idle people ...", whom he calls "lazy Turks": Goethe who is here under discussion, shall serve as a prime example, quite generally at first, that cultured minds and a corresponding sensitivity to impressions received through them - e.g. sounds or smells - are often an integral part, if not the prerequisite, for great ability. Furthermore, offending the sense of smell, which is in fact closely related to emotional reaction, and the significant related impairment of well-being, may drive an extremely gifted person such as Goethe to a state where he forgoes his characteristic virtues and makes unjust and intolerant remarks.

But have we nowadays really progressed much further, has the discussion become more factual, just because better scientific tools are available to us, than to the physicians of the baroque period; most importantly, to coin a short drastic phrase: does the carbon monoxide-hemoglobin level of Mr. Smith provide more evidence about quality of life than Goethe's nose?

The growth of published material relating to our theme has, in fact, pushed forward the polarisation of "for" and "against"; the scientific investigation of the subject has by no means led to less emotional reaction. This argumentation extends from the appeal of the rebellious non-smoker as an antisocial, argumentative person who seriously queries the free development of the personality of a smoker, which is anchored in basic law, to the comparison - if not juxtaposition - of the reduced right to breathe freely, with the rape of an unconscious female. I am not exaggerating: And such arguments are often propounded with a logic which appears quite rabid. Does such an emotionally directed argumentation still merit the noble title of rationalisation, given to it by the science of psychology, or are we not rather dealing here with schoolyard skirmishing: Boys draw a demarcation line and wait in tense expectation for the enemy to transgress it. It goes without saying that in our case, this takes place at the highest level of verbalising.

Thank God there are scientists, however - and I am able to welcome a few of them here amongst us - who are primarily interested in a factual clarification of those questions with which we are going to occupy ourselves today. Only methodologically faultless investigations, capable of being checked at any time, and an honest evaluation of the results of these investigations may guide us (please accept

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the philosophically and politically equally relevant concept of honesty in its broadest sense!) The legal man in legislation and arbitration, the doctor, the publicist, the politician all rely on clear statements from the scientist. Scientific knowledge has a deciding function in a conflict of interests in the widest sense, which incorporates both the individual sphere of personal enjoyment, and health and economical aspects. They help us to avoid the danger which threatens from unbridled commercialism, but to no less a degree from the fear of unreal perils.

As far as passive smoking is concerned - to return to the concrete reason for our conference - the abovementioned serious investigations have surely proved that non-smokers are not threatened with immediate danger from their smoking fellow men; at least not in the sense that they are subjected to the same diseases which occur to an above average degree in smokers, such as arterial diseases which can lead to arterial blocking, chronic bronchitis, lung cancer and other malignant tumors of the "smoke passage", to name just the most important ones.

But equally certain is the fact that irritations do occur, which often become acute; from eye irritation via throat irritation, headache to nausea. Again and again one hears the objection that here we are surely dealing with mostly very sensitive individuals; an objection voiced with a scarcely audible undertone: Should we really be considerate of these mimosas all the time? But to this I would like to reply: Here we are dealing not only with differences between individuals, but one and the same person may be subjected, depending on disposition and circumstances, to considerable fluctuations of sensitivity and consequently also tolerance to tobacco smoke from his smoking contemporaries. This remark must be made in spite of its banality, since this everyday fact is repeatedly forgotten; particularly when a smoker turns the tables and says: I feel offended by smoking prohibitions in my right, guaranteed by fundamental law, of developing my personality without impediments, inasmuch as I myself only irritate but in no way hurt, as is always said, the bodily health of others; at worst, I merely interfere with their subjective well-being to a small degree. The public behaviour of many smokers shows that they are hardly ever aware how much they themselves restrict the, legally protected, sphere of freedom of the non-smoker; moreover, this is not uncommonly a restriction which in fact already fulfills the circumstances of duress.

Furthermore, one should not consider this complex in its medical and legal significance alone, but relate it to all other endeavours to improve environmental conditions. As people move closer and

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closer together and possibilities of evasion become scarce, sensitivity to the excessively expansive life expression of one's fellow man grows. If we timidly register every minimal increase of harmful substances in the atmosphere, every increase of noise level in road traffic at our front doors, every even remote possibility of carcinogenic effects of foodstuff additives or sweeteners, then it is surely absurd to ask for tolerance of irritation by tobacco smoke and to excessively strain concepts such as "social adequacy" and "usual".

These reflections apply particularly to a place where man spends nearly one third of his working life since he cannot, least of all at the workplace, remove himself from the undesirable effect of tobacco smoke. In the often-quoted reply of the parliamentary secretary of State in the Federal Health Ministry to a short question on 29th January 1970, the federal government has made known its view that the question of smoking at the workplace would be unsuitable for summary legal agreement. On the basis of welfare obligations however, the employer or boss would have to - I quote: "Within the confines of reasonable limits, safeguard the rights and interests of the employee or worker, and facilitate the execution of his tasks. He has to protect the life and health of the employee and must, among other things, maintain the workplace in a condition which precludes the occurrence of health hazards (to non-smokers by tobacco smoke). Should the health of the non-smoker be impaired by tobacco smoke, the non-smoker may request his employer to undertake measures preventing his health from being impaired. If legal rules do not already exist - e.g. for prevention of fire danger - no-smoking regulations may be provided on the basis of a tariff treaty, factory rule or individual contract. In certain circumstances, on account of his managerial rights, the employer may also unilaterally decree a non-smoking rule". (End of quotation).

This appraisal of the legal situation by the federal government isolates "health hazards" or - somewhat weaker - "impairment of health". Medical science tells us, however, that no proof of this exists in the sense of pathological changes of bodily functions or organs. Hence this view is obsolete unless one wanted to resort to a World Health Organisation postulate for support, where health is understood to be "a condition of complete physical, emotional and social well-being". As you know, this concept of health is controversial, mainly because it extends to social well-being. Even by itself, well-being is an extremely subjective matter. I take the liberty to add: What is perfect? But with the same scepticism I would like to cite the following sentence in a legal opinion, - I quote: "For solving the conflict in the tolerance zone" it would be decisive "that for the normal healthy citizen ... smoking in the same room with normal air conditioning and heating usually does not represent a significant limitation".

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(End of quote). In the era of rehabilitation, of re-incorporation in the work process, of increased disturbances of the bodily vegetative control system, are we still allowed to argue like that? The Bavarian State Chancery and the nine ministeries have thus decided to set a good example and have published, in September of last year, a joint notice in the Bavarian State Gazette, proclaiming six basic rules for the protection of non-smokers in public offices:

1. Housing of smokers and non-smokers in separate offices. If this is impossible, smoking in offices shall be permitted only with the consent of everybody present. In any case, smokers are expected to show special consideration towards non-smokers.

2. Patrons of public offices should not be molested by smoking employees and in turn, should also be asked not to smoke.

3. Rules for smoking, with due consideration of room size and air conditioning facilities, during conferences and meetings. As a matter of principle, smoking is permitted only if all persons present approve. Opportunity for intervals for smoking.

4. Smoking is not permitted in official vehicles, unless all occupants approve of smoking. Regulations incorporating driver smoking bans are not affected.

5. Spatial separation of smokers and non-smokers in canteens. Smoking ban during main eating times, where local circumstances make it impossible to set up effective protection for passive smokers.

6. Smoking is not permitted in teaching and instruction rooms.

It is probable that each of you has come to this conference with quite personal expectations. I for one am in this situation and I believe that there is no better way of opening a specialist dialogue about such a topical theme, than with questions. Permit me thus to put those questions to the speakers, to which the answers are my particular concern; most of them I want to clothe in the form of a plea:

1. Is there a definition of "legally significant stress" as a consequence of a smoking ban? Sometime ago, Klosterkoetter and Gono requested a clear definition of the concept of the legally relevant significant stress and that measurements and numbers be assigned to it. I join them in this request.

2. Also closely related is the concept of "appropriate consideration". I ask for a precise definition of its place within those decision criteria which may eventually lead to a smoking ban.

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3. How can situations such as exemplified in the following be dealt with: A taxi passenger smokes. The driver points out that he will get eye irritation, nausea and headaches. The passenger replies that a taxi driver must be able to suffer a smoking passenger, or he is unsuitable for taxi driving. Here we are dealing with a conflict situation within the frame-work of the obligation of conveyance.

4. A smoker imposes a stress on a non-smoker by behaviour which objectively causes his own health to be impaired, even if subjectively he derives that enjoyment (or thinks he derives that enjoyment) from it, to which alone one could ascribe the right of free development of personality. The aspect of the non-smoker's right to protect himself is neglected in many legal opinions or even juxtaposed to, as "static", preserving, the superior "dynamic" act of the personal development of the smoker. In view of the health education of our youth, can this revaluation of the "lust principle" (Freud) still be tolerated? Does it not conflict with the "reality principle", on which man should mature?

5. What proposals are experts able to make in order to complete or complement the regulations of §32 of the law relating to workplaces, which until now relate only to recreation, rest and first-aid rooms and which are very general?

May I now wish your conference success.

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STATE OF THE MEDICAL DEBATE ON THE THEME "PASSIVE SMOKING"

W. Klosterkoetter

In this country, a discussion of the theme "passive smoking" is burdened with basic-right clauses from art. 2 (1) and (2) of our basic legislation: The right of free development of personality, limitation of this basic right by violating the rights of others; the right of physical non-impairment. Some people have clearly realised the following: If passive smoking is termed a health hazard for people with average sensitivity, it will not be difficult, with reference to the superior basic right of physical non-impairment, to enforce a nearly water-tight protection for the non-smoker through German courts; to combat smoking more efficiently than hitherto or to decrease the daily smoking dosage, for example, by smoking bans at the workplace or elsewhere. However, if passive smoking is not classified as hazardous but merely as more or less irritating for people with average sensitivity, then one must balance the "right of free development" and the "rights of others" differentially. It must be examined whether a merely trivial or significant irritation exists or is to be provided for, in which case quantitative data of the respective smoker environment, such as air conditioning and smoke loading, must be taken into account. As a long term limitation of the basic right of free development of personality is probably involved, these circumstances would demand, subject to the actual state of knowledge, a more elaborate proof than was required in past federal court decisions.

The following legal-medical specialist talk should contribute several facts to the clarification of the problems.

First of all, a few words on the subject of smoking. The latter was introduced about 400 years ago to the pleasure culture of the West; cigarette smoking began to spread about 100 years ago [1]. At present about 34% of our adult population smoke cigarettes (1975 figures); including pipe and cigarette smokers (sic), the proportion of smokers is somewhat above 40% [2]. On an average, a smoker consumes 7600 cigarettes annually or 21 per day. With reference to the condensate content, this corresponds to 10 cigarettes from the cigarette generation of 1961 [3]. Most people start smoking at school age [4]. Apparently, changing habits at a later stage is difficult. Several large epidemiological studies in the past 10 years have shown that smokers - particularly those who inhale cigarette smoke - run an increased risk of certain illnesses and causes of death compared with non-smokers (Reviews in: [5-7]). Doll and Peto divide excessive mortalities established for smokers -

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- into those with which a primary connection with cigarette smoking may be assumed; lung cancer together with bronchitis and emphysema belong to this category;

- into those which may probably wholly or partly be ascribed to the fact that the sufferers smoke, e.g. coronary heart disease, stroke and arteriosclerosis.;

- furthermore, into those of which causes are not known or causes other than smoking must be presupposed.

Most probably in connection with the wave of knowledge from these epidemiological studies, the question of whether passive smoking might also be a health hazard, has become acute. In replying to a short question concerning the effects of cigarette smoking of 10 May 1974 [21] the competent ministry assumes - I quote - "with sufficient certainty, that those health hazards established in smokers may occur in less severe but basically the same form, as a consequence of passive smoking".

In the last specialist report of the World Health Organisation in 1975 regarding "Smoking and its Effects on Health" [6], and also in the pertinent recommendation of the 3rd World Conference on "Smoking and Health" in 1975 [9] and particularly, in the scientifically significant workshop report "Environmental Tobacco Smoke Effects on the Non-Smoker" in 1974 [10], one cannot find these statements - which are, moreover, not documented by facts or references. In the WHO report, the statement made as early as 1970, viz. that health hazards of smoking are largely confined to the individual smoker, is reiterated at the outset. Then one is reminded of the known facts, viz. that non-smokers may be exposed to harmful smoke concentrations in badly air conditioned closed rooms, e.g. vehicles and small offices, that tobacco smoke may trigger detrimental reactions in asthmatics, certain allergic and otherwise sensitive people. Babies for some months of their life and certain children appear to be a group of people with particularly pronounced sensitivity (increased proneness to illnesses, i.e. symptoms in the respiratory system) [11-18]. However, the topic "passive smoking at the workplace" is not relevant to these people. In any case, it is not yet possible to form a final judgement on this epidemiologically rather difficult complex.

It is stated in the recommendation of the 3rd World Conference that unrestricted smoking in closed rooms might be hazardous to the health of various people with the most diverse medical sensitivities, and that it might cause uneasiness and physical irritations in the

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majority of non-smokers. In these texts, the quantitative aspects are of decisive importance, which may be summarised in the following conditional sentence: "Unrestricted smoking in badly air conditioned closed rooms" (sic). It is also not evident from further critical scientific reviews from past years (Schievelbein [19]), Schmeltz et al. [20]) (refer also to Klosterkoetter et al. [21]), [22]) that passive smoking is a health hazard and that the so-called "smoker's diseases" can be triggered by passive smoking. Thus, Schmeltz et al. wrote in 1975 that passive inhalation of tobacco smoke does not, according to the existing state of epidemiological knowledge, lead to heightened risk as regards cancer of the respiratory passages, emphysema - bronchitis and cardiovascular diseases - i.e. the most important "smoker's diseases".

In this country, F. Schmidt proposes a different view [23-33]). In his opinion, passive smoking is a health hazard in principle. In a later publication, he leans on the well-known WHO - formula in this respect (health as complete psychic, physical and social well being) [33]). He explains his views on the "ruling scientific doctrine". In his important review paper [32]) he discusses carbon monoxide in particular, at the same time mentioning nicotine, NO_2 and cancer-produced substances; furthermore, reference is made to effects of irritations in healthy non-smokers and in particular to detrimental reactions in allergic persons [34]). One notices that he generally invokes test results (with CO) which were gained under excessive test conditions. Probably under the compelling impression of more recent German publications from independent institutions [21]), [22]), [35]), [36]), he has recently moved away from CO and nicotine, harmful substances which he previously moved right into the foreground; cancer-producing substances are now moved into the foreground instead. In fairness, however, it is cautiously stated, following remarks on threshold values, dosage-effect relationships and additive effects "that occasionally, passive smoking may at least be partially involved in a bronchial carcinoma in non-smokers" [33]). As far as the author draws on results of animal experiments in justifying his views, these may be excluded as irrelevant from considerations of conditions of human passive smoking. Smoke concentrations applied in past animal experiments are many times greater than concentrations which occur in passive smoking. This applies particularly to tests where tobacco smoke cancer is produced by inhalation, where - in order to simulate active inhalation of cigarettes as closely as possible - the animals are subjected to tobacco smoke just marginally below a lethal CO-poisoning. No human would ever remain in such a smoky atmosphere. When justifying the health-relevance of any environmental factor, then in our opinion one must begin by considering if these factors occur, under everyday conditions, in a concentration or strength which may lead to harmful effects. Examples of excessive smoke generation, representations of the toxic effects of harmful substances which occur in stronger concentrations, and

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also data which have been accepted from the literature uncritically or with inappropriate interpretation should not - when general considerations of smoking bans are made - form the bases of decisions in either verdicts of courts of law, or in procedures of order or administration.

For scientifically trained authorities on international literature and in particular, for persons who, unlike F. Schmidt, are able to produce their own experimental experience, it is difficult as a rule to acknowledge his context of citations, and to follow his arguments derived therefrom.

I am to concern myself with the state of the medical dialogue about "passive smoking" in relation to smoking at the workplace. Suitable starting points for the industrial medical officer present themselves in this respect mainly in §§ 5 and 32 of the workplace regulation. In § 5 it is stated that "sufficient wholesome breathing air" must be in evidence. According to the "guidelines for work and social rooms" NW (1964) [37], for office jobs - where smoking problems occur primarily - a minimum air volume of 10m^3 per person and an air rate (air requirement per person per hour) of 30m^3 would be considered "adequate"; these are - nota bene - minimum requirements. With heavy work, larger minimum air volumes and air rates are necessary. "Sufficiently wholesome" means that this breathing air must not be hazardous to the health of people working there. One should include here "significant nuisance" which, although it does not represent a health hazard, is accompanied by real upsets of well-being persisting for some time under given conditions.

According to § 32 the employer is obliged to provide by suitable means, protection for the non-smoker from irritation by tobacco smoke in recess, first-aid and rest rooms. This illustrates that increased demands with regards to air quality must be made in certain local conditions and prospective circumstances.

In this short paper which has been assigned to me, I am unable to quote all the literature searched for this purpose; instead, I shall have to restrict myself to integrating evaluations and summaries (later reviews in [7], [10], [19-22], [35], [36], [38]) and in general, refer to the literature quoted.

The term "passive smoking" shall here mean the voluntary or involuntary intake of tobacco smoke by non-smoking persons; during the intervals between puffs, smokers are obviously also non-smokers. There is regular, long-term, under certain conditions life-long passive smoking, e.g. within the family, in the restaurant trade, in workrooms with mixed utilisation; and there is occasional, more or less short-term, frequent or infrequent passive smoking, e.g. on social occasions or restaurant visits, in gatherings, meetings and on many other occasions. The dentist cited in a Silesion court verdict [39] may probably be an occasional short-term passive smoker subjected to unusual exposure.

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Only then can one understand why he - without success - requested a smoking ban even in bedrooms and dining rooms, passages, waiting rooms and toilets. In view of the question of how much can be expected of the individual, differentiations of this type (in the Federal Emission Protection Act the "duration" is rightly cited as a factor, apart from the type and extent of the effects), and the dosage-effect relationships which are decisive in all emission matters, are of interest. In fact, if one can reckon with the intake of a cigarette equivalent of less then 0.1 to 0.4 and up to 1.0 in quite unfavourable conditions in the case of a long-term passive smoker exposed regularly for 8 hours per day (the above figures are calculated on a condensate basis with an assumed breathing volume of $6m^3$ (8h and a retention of about 70%), then - in the long run - the exposure of the occasional passive smoker decreases by one to several powers of ten (according to frequency and duration of these occasions), compared to the regular passive smoker. Naturally, only orders of magnitude are represented above.

Passive smokers inhale the sidestream smoke (SS) which spreads through a room and which accounts for the major part of the smoke emission from a cigarette, and that portion of the main smoke stream (MS) which the smoker exhales or puffs out. The following emission data apply to a few important components, for today's cigarettes:

Components	Ratio SS/MS	mg per cigarette MS	SS	Total
Condensate	1.7	15	25	40
Nicotine	2.8	0.8	2.2	3
CO	3.5	15	52	67
CO_2	10	25	250	275
NO	9	0.3	2.7	3

Dr. K.W. Weber [40] has kindly compiled the above for me from literature data.

Again merely to illustrate orders of magnitude, we shall do the following calculation on a condensate basis: An inhaling smoker extracts, from a current cigarette, about 1.5 mg particulate mass with one breath of smoke. If the room air contains 1.5 mg particulate mass/M^3, which is already significantly smoke-polluted, but still realistic, then a sedentary, working non-smoker, in comparison to the breath of smoke of the inhaling smoker, takes in about the 1300th part only with one breath (assumed retention 70%). With a realistic nicotine concentration of 0.1 mg/m^3 in a smoker's room, the passive smoker would, by comparison with the breath of smoke of an inhaling person, take up about the 1000th part of nicotine. Thus the portions taken in are about 3 powers of ten

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less than with the breath of smoke of an inhaling person. Obviously variations do occur here, according to how high the concentrations are in the main smoke stream, and in the room air of the smoker's room. It is reasonable that these are tremendous differences in concentration in view of all harmful substances having a local effect on the smoke passage; one should, with respect to the carcinogenic effect of tobacco smoke, keep an eye on this; according to Schmaehl [41] this effect is apparently a local one.

Amongst the several thousand substances contained in tobacco smoke in the gaseous and solid state [38], [42], there are those with an odorous effect, irritating effect, poisonous effect and carcinogenic or cancer-promoting effect. The odorous, irritating and poisonous effects are dosage-dependent. The fact that a substance is detectable in tobacco or that it is emitted during smoking, does not provide information as to whether this leads to an emission which is significant for a non-smoker; it is the dosage which is decisive. In respect of the development of cancer too, dosage-effect relations are clearly demonstrable; this is not denied by F. Schmidt either [33]. However, here the relationships are theoretically not fully known; it appears that what matters is the total dose taken in during long time intervals, probably in connection with other local harmful effects.

Let me now discuss in more detail some substances whose possible harmful effect on the passive smoker has been discussed, particularly in recent years.

First of all there is carbon monoxide, which is made responsible for heart-circulatory defects of smokers [6], [7], [43-48]. Indeed, inhaling smokers have CO-hemoglobin values of 4-6% mean, up to maximum values of from 10 up to nearly 20%, whilst values from 0.63 to 2.4% are found in non-smoking city dwellers [36], [41-58], and mean values of 1.53% in blood donors in Chicago 1974/75 [55]. The CO-Hb saturation value which is reached with low CO-concentrations in the course of several hours may be predicted according to the formula ppmCO x 0.16 = % CO-Hb [59].

If any organic matter is burnt or carbonised - such as tobacco - in a restricted, badly ventilated room, then it is obviously possible to generate, according to smoke formation rate per unit time and air volume, CO-concentrations which attain the MAC-value of 50 ppm, or even go considerably beyond this figure [57], [60-72]. It is well known that a running engine in a closed garage can cause death by CO-poisoning. Srch [57] asked 2 persons to smoke 10 cigarettes in 1 hour in a tightly sealed small car ($2.09 m^3$ cabin volume) which was stationary inside a garage, in order to shed some light on a murder case; this represents the maximum for chain smokers. The CO-concentration in this small space then rose to 90 ppm which approximately corresponded to the then current German MAC-value (100 ppm for 8 hours), and which caused CO-Hb values of 5% in two

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non-smokers who were present. Portheine [61] has generated up to 160 ppm CO in a very tightly sealed, parked small car, by means of intensive tobacco smoking; Harke et al. [66] reached 110 ppm with 9 cigarettes in a stationary unventilated sedan. Now people obviously do not behave like this in everyday life. During the smoking of 30 cigarettes within 21 minutes in an unventilated climate chamber of 30m^3 volume, Weber-Tschopp et al. [72] attained 71 ppm. of CO. Now according to regulations, a room of 30m^3 is intended for 2 to 3 persons, for each of which an air rate of at least 30m^3 per hour must, in addition, be provided. Two average smokers - referred to the above mean consumption of 21 cigarettes per day - together would smoke about 3 cigarettes per hour. In such a room, this is not even sufficient to attain the CO-long-term emission value of 8 ppm or 10 mg/m^3 of the Technical Committee on Air, to which corresponds a CO-Hb saturation of 1.28% in accordance with the above formula; this is far below the generally recognised harmless threshold of 2.5% [58]. During tests in 49 Hamburg offices, Szadkowski et al. [56] found a mean consumption of 6.86 cigarettes in smokers during one shift, and 2.67 to 2.78 ppm. of CO in smokers' rooms. American authors reckon with a mean hourly cigarette consumption of 1.29 cigarettes [73], [74] in connection with the control of irritating and odorous effects in aircraft cabins. Thus we see that everyday smoking conditions diverge widely from the horrific reports which have been repeatedly publicised, mainly by F. Schmidt. Indeed, under normal smoking conditions in everyday life in the most diverse locations, in offices, cars, buses, aircraft, at parties and other festivities, CO-concentrations of 2 to 5 ppm, less frequently up to 10 ppm, and under the most adverse conditions, still higher values have been found - for literature see [36], [67], [69], [75-81]. With CO-concentrations, occasioned by tobacco smoke, of 20 ppm and more, the effects of irritation and nuisance become so prevalent that it becomes a nuisance even to smokers and thus, as a rule, will lead to spontaneous control measures.

In the stream blown out by a smoker or in the dense clouds of the side stream smoke, local peaks in concentration occur [21], [82], [83], which vanished by diffusion in a very short time. These peaks are of no real significance inasmuch as the slow buildup of the CO-Hb saturation level is decisively influenced by the longer-term mean concentration. In fully air-conditioned buildings, one must obviously consider, as the case may be, the CO-content of the surrounding air.

Experts in the subject matter agree in their verdicts that no risk exists for the passive smoker as regards health hazards caused by CO [10], [68], [69]. Similarly, no decrease in efficiency caused by CO is to be expected in view of the low CO-Hb values [59], [84-91].

Similar circumstances apply to nicotine [21], [62], [64], [65], [67], [92-96]. Here it is also possible to reach or even exceed, e.g. the

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MAC value of nicotine (0.4 mg/m^3) with an unrealistically high tobacco pollution in closed rooms under adverse ventilation conditions. Even then the absorption of nicotine by the inhaling smoker per breath of smoke is still about 200 times greater than with one breath of a non-smoker in an atmosphere of 0.5 mg nicotine/m^3. Incidentally, the MAC value for nicotine has been established for tobacco dust at the working place; nobody would think of using it as a measure for those tobacco smoke concentrations at the working place which are unreasonably high. Values of 0.1 mg/m^3 of nicotine and less, i.e. 1/5 of the MAC value and less, occur under realistic smoking conditions. Whilst the concentration of nicotine in the bloodstream rises rapidly and steeply in the inhaling smoker, there is, even in the non-inhaling smoker, where at least some resorption takes place in the mouth-throat region, barely a significant increase beyond the normal level [35]. However, it is just this pulsating absorption of high concentrations in the actively inhaling smoker that is of significance for the pharmacological - toxic effect of nicotine, which is rapidly detoxicated in the human system; all this is completely by-passed during passive smoking. It is not surprising that, even under excessive influence of smoke, none of the typical nicotine reactions in the heart-circulatory system was found in passive smokers [98], [99]. Naturally, even passive smokers absorb nicotine [21], [64], [93], [94], [100]. The latter and its transformed products can be demonstrated in blood and urine, in urine in quantities which, with excessive exposure, amount to less than 5% to 1% of those found in smokers. As far as F. Schmidt [33] critically compares test results by Russel et al. [100], Hinds and First [96] and by ourselves [21], [22], he must be prepared to accept the fact that comparisons are permissible only when the same test conditions have prevailed.

The absorption and effects of nicotine in active and passive smokers are not only quantitatively but primarily completely different [35], hence when speculating on possible health hazards by passive smoking, one may ignore nicotine.

I have only discussed CO and nicotine more broadly because F. Schmidt has particularly stressed these substances in that paper which is the only one quoted in several verdicts [32].

In the same paper, nitric oxides are mentioned as substances harmful to passive smokers, particularly the irritant gas NO_2, which was also specially emphasised in the Berlin OVG auditorium smoking ban of 18.4.1975. F. Schmidt states that it is reputed to occur in cigarette smoke with a concentration that is 160 times higher than the one assumed to be harmful at continuous exposure, according to common knowledge [32]. According to a communication by Weber [48], no NO_2 whatsoever has been detected in main stream smoke. The working group Grandjean [72] was unable to demonstrate the existence of NO_2 in a chamber of 30m^3 which was filled with side stream smoke, during a major series of tests; in another test run, 0.123 mg of NO_2/m^3 were found in the unventilated room after 10 cigarettes had been smoked

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within 10 minutes; this figure lies marginally above the long-term emission value of TA-air (0.1 mg). Subsequent to the excessive smoking of 30 cigarettes within 21 minutes inside the $30m^3$ room, the NO_2 concentration amounted to 0.287 mg/m^3, which is below the short-term emission value of Technical Committee on Air and amounts to less than 1/30th of the current MAC values. Thus one may also neglect NO_2 as regards passive smoking, as it is less significant than working in the kitchen at the gas stove.

In the circular "Protection of Non-smokers in Office Rooms" by the Minister for Labour, Health and Social Matters NRW of 1975 [102], carbon dioxide is also quoted as a substance significantly hazardous to the passive smoker. I was unable to clarify to what extent the heroic murder-detection test of Srch [59] in the abovementioned $2m^3$ small passenger vehicle influenced this opinion. In fact, Srch had established 2.96% CO_2 in the air inside the tightly sealed car occupied by 4 persons and stationary within a garage, after one hour and the smoking of 10 cigarettes. According to calculations, within 1 hour and with no air change whatsoever, 4 persons would raise the CO_2 content to about 3.6% whilst under the above conditions, the 10 cigarettes would contribute only about 0.08%. Nevertheless, one sometimes hears the statement in Germany that in closed motor cars where smoking takes place, the CO_2 content could reach 2% and more. This is correct according to the results of Srch, but only as a consequence of human CO_2 production, which per hour is greater than that corresponding to the CO_2 emission of more than 110 cigarettes. It is thus futile to even mention CO_2 in this context.

Mr. Wischnath [103] has sometimes expressed concern regarding the consumption of oxygen during smoking. This may also be neglected: the 285 mg O_2 consumed by 1 cigarette are contained in 0.95 litres of air; a sedentary, working non-smoker consumes about as much O_2 per hour as the smoking of 75 cigarettes.

During the combustion and carbonisation of organic materials, e.g. also during the production of tobacco smoke, amongst other things cancer-producing and cancer-promoting substances are generated [104], [105] - more than 25 are known at present, without us knowing which of these dominate as regards the statistically/epidemiologically proven surplus risk of cancer mortality - mainly lung cancer.

This surplus risk is all the greater, the more and the longer one smokes - particularly with inhalation. Once smoking is stopped, the increased lung cancer risk, within 15 years, drops sharply towards the normal risk of a non-smoker, without however quite reaching the same [6], [8]. The long-term passive smoker with regular exposure of many hours per day is different from the inhaling smoker insofar as he absorbs less than 1/10th and up to about ½ cigarette equivalent daily, and in portions which are smaller by a factor of 1000 and more than during one breath of smoke of the inhaling smoker.

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As regards actual local concentrations in the smoke passage, there are thus considerable differences. To date, one does as a rule bracket smokers of 1 to 10 cigarettes as moderate smoker groups in ipidemiological studies; hence one cannot know e.g. the threshold risk of 1 cigarette per day and work back to fractions of cigarette equivalents, particularly since the abovementioned differences in concentration would also have to be taken into account. At this stage, no clues to an increased risk of lung cancer in long-term passive smokers exist in the literature [20]; as already quoted above, one cannot however, according to F. Schmidt [33], exclude the possibility that "occasionally passive smoking may at least be partly involved in a bronchial carcinoma in non-smokers". Now I do not know what significance can be attributed to a non-excludable possibility in a conflict of basic rights. In all parts of the discussion on substances harmful to the environment, doctors would hardly ever be prepared, for theoretical and practical reasons, to make the statement that this or that may with certainty be excluded. Because of the previously mentioned dosage relationships, occasional and short-term passive smokers may now be excluded.

The particulate matter emitted by cigarettes leads to concentrations which usually lie above the short-term emission value of TA-air ($0.2\ mg/m^3$) and below the MAC values for dusts (4.0 and $8.0\ mg/m^3$ resp.) [60], [65], [68], [69], [73-75], [92], [95], [96], [106-109] with the usual smoking and room conditions. When air volume and air rate correspond to workroom regulations, it is most likely that one may reckon with particulate masses between 0.5 and $1.5\ mg/m^3$ in the case of a medium smoking habit (consumption of 21 cigarettes per day = about 1.3 to 1.5 cigarettes per hour). With higher air change figures, lower concentrations may be expected. Nothing is known about the actual health-significance of particle concentration; naturally, amongst other things, substances with irritant, odorous and toxic effects occur in this phase. Since the condensate mass consists largely of decomposable organic material and since the inorganic constituents are partially soluble, the problem of dust storage as in pneumoconiosis is irrelevant here.

Irritants in tobacco smoke (e.g. NH_3, acroleine, pyridine, aldehydes) merit particular interest. The most important irritant appears to be acroleine, whose MAC value (0.1 ppm) is exceeded, according to investigations of our Swiss colleagues [70], [72] when only 10 cigarettes are smoked in 5 to 10 minutes in an unventilated room of $30m^3$. Compared to usual smoking habits in workrooms of this size these are, however, extreme conditions.

With respect to irritating effects, the eyes exhibit the highest sensitivity, followed by nose, mouth and throat, breathing passages and other systems. It has once been said that the irritating effect of higher tobacco smoke concentrations is so prevalent, that toxicological problems due to other smoke components do not even arise. When interpreting the results of the working group around Grandjean [72], it may be stated that with normal smoking habits (cf.

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a mean consumption of 21 cigarettes per day, about 1.3 to 1.5 cigarettes per hour; according to American authors 1.29 cigs./h in the mean; in Szadkowski et al. 6.8 cigarettes per 8 hours in the mean = 0.85/h) in regulation size workrooms (air volume per person 10m^3 minimum) with an air rate in accordance with regulations (at least 30m^3/h/person), the irritation threshold is not reached. But unrestricted smoking in undersized, badly ventilated rooms leads to irritation phenomena, to which smokers are usually just as susceptible as non-smokers anyway.

Increased concentrations of irritating substances occur in the puff field of a smoker and in locally dense clouds of side stream smoke. This is of significance for smokers and non-smokers sitting close together. Indeed, many conflicts in the border area of smoking and non-smoking zones, at the dining table in a restaurant or dining carriage, or with closely spaced seating in an auditorium, arise in this way. Such local concentration peaks are often present even with good ventilation, a fact of which smokers sometimes do not seem to be aware. These peaks are levelled out if the spacing is sufficiently wide.

Nuisance effects may occur even below the measurable threshold for irritating effects. Irritation as a subjective sensation may be established by suitable questions, then quantified by means of the usual socio-psychological scaling methods, and related to conditions of exposure [72]. Such investigations may be supplemented by questions relating to attitudes, health considerations, individual sensitivities and other moderating variables. If the smoke pollution in a room lies below the irritation threshold, then maybe only the odorous effect will still play a decisive role, not infrequently in connection with the aversion of having to inhale sensibly detectable polluted air.

The odorous effect is a complex problem; odorous qualities contribute significantly to the pleasurable experience of a smoker; quite a few non-smokers are partial to the smell of tobacco, others classify it as being neutral at least; but many others do not experience it as a pleasure and experience it as irritating air pollution. Sense of smell and emotionality/affectability are closely related.

Irritation and annoyance of non-smokers can, however, arise merely from the view of the latter - outside of smelling distance and material influence - that someone indulges in the frowned-upon habit of smoking. Hence attitudes now become a decisive factor.

In our opinion, transitory irritating and annoying effects cannot be considered as a health disorder or hazard. If one now brings the WHO-formula "health as complete psychic, physical and social well-being" into play, then with regard to irritating and annoying effects, one has to assume a more or less severe restriction of actual well-being. For the onset of "significant nuisance", which may be legally relevant, physical irritation effects are primarily suitable for a characteristic threshold. Here, one is able to quantify rather unambiguously [71], [72], [73], [99], [107], [110]. The nuisance threshold

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is lower than the irritation threshold. Here again, in principle one is able to quantify, depending on circumstances, conditions of locality, justified expectations and also extent and duration of influences, those limits which individuals may reasonably be asked to suffer (number of cigarettes smoked per defined air volume, CO, acroleine, NO, formaldehyde, perhaps NH_3; in Weber-Tschopp et al, [72]) limit of tolerance with less than 5 cigarettes per 30m^3 air space without air change). It should not be impossible to develop standard statements in this respect. Involuntary passive smoking is a quantitative problem; it becomes intolerable for involuntarily exposed individuals when smoking takes place without restriction in closed, badly ventilated rooms - i.e. in an appropriate manner as regards air space and air change. In my opinion, one should not assume anything more than a trivial nuisance in the majority of everyday smoking conditions. Article 2, section 1 of our basic law was possibly not framed with a view to guaranteeing, at all times, complete physical, bodily and social well-being with priority in respect to the right of free development of personality, to everybody as a fundamental right. H. Schaefer [111]) calls the WHO-formula Utopian and so vague that hardly anybody could be classified as healthy within its framework. The basic right of bodily safety - which has probably a different previous history - can hardly be connected in practice with the WHO-formula of complete well-being, unless it is done via a quantified "significance" of disturbed well-being, i.e. one documented with scale and number. Indeed, the federal law for emission protection implies the hypothesis that smooth transitions may exist between "significant nuisance" and danger.

In conclusion, the following must be said: Involuntary passive smoking under commonly occurring smoking conditions is not hazardous to health, according to the present state of scientific knowledge. This applies to long-term passive smokers, and certainly to occasional passive smokers. F. Schmidt's repeatedly quoted "prevailing doctrine" that passive smoking is hazardous in principle, is not verified in serious and critical international literature. However, he may be able to quote interpretative differences, mainly by utilising the WHO-formula of complete well-being. But the most important differences seem to consist of his preference for bans firstly in the interests of combating smoking in general and secondly, the decrease of smoke dosage; these can easily be satisfied in this country even with the alleged health hazard of passive smoking. Different solutions may be derived from the statement of the federal health council on the topic "protection of non-smokers" of 2.9.1976 [112]). Even in this statement, passive smoking is incidentally not recognised as being hazardous to health.

Unrestricted smoking in badly ventilated closed rooms may lead to significant irritation, and cause deleterious reactions in people with particular medical sensitivities and ailments. Significant irritation by involuntary passive smoking can, and should, be avoided through rules of behaviour and measures applied to unsure hygienic air.

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The cited circle of particularly sensitive people should - as far as they are actively working - be appropriately protected within the framework of the employer's duty as regards staff welfare.

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ATTEMPT AT A QUANTIFICATION OF THE EFFECTS OF PASSIVE SMOKING

H.W. Schlipkoeter and G. Winneke

The consequences of actively inhaling tobacco smoke for mortality or morbidity in the population and the stresses on the whole of society resulting from it, are adequately known and documented (e.g. refer to: Report of Surgeon General, 1973). Thus e.g. it is certain that active smoking heightens the risk of contracting lung cancer, arterial occlusion diseases, chronic bronchitis or strokes, thereby implying an excessive mortality of smokers. But the question of whether the inhalation of smoke-contained substances by non-smokers via so-called "passive smoking" or "participatory smoking" in albeit weakened, but mainly similar form is hazardous to health, is still under discussion. The facts presently known have been represented in summary form in several review papers (Rylander, 1974; Schievelbein, 1973; Schmeltz et al., 1975; Klosterkoetter and Gono, 1975).

In this review paper an attempt will be made to analyse the prevailing data quantitatively and to supplement them by some more recent results. The following aspects will be treated here:

1. Loading of the atmosphere in enclosed space with substances contained in smoke;

2. The absorption of substances contained in smoke by the non-smoking co-smoker;

3. Acute and chronic effects of passively absorbed substances contained in smoke.

Results from animal tests, which were carried out in larger numbers primarily with a view of clarifying experimental tobacco carcinogenesis (Schmaehl, 1968), will not be taken into account here, because they can in a quantitative sense be transferred to human circumstances in a limited way only. Furthermore, in accordance with the main point, substances contained in cigarette smoke will be treated in this paper, because emissions from other consumed tobacco products are to be considered as being basically similar when referred to the same mass of tobacco. The only exception is ammonia, which is emitted in cigar smoke to a far greater extent than in cigarette smoke.

1. Regarding the loading of the atmosphere in enclosed space, with substances contained in smoke

Harmful substances transferred to room air from consumed tobacco goods, are mainly emitted in the so-called side stream smoke and, to a lesser extent, in the main stream smoke. By side stream smoke,

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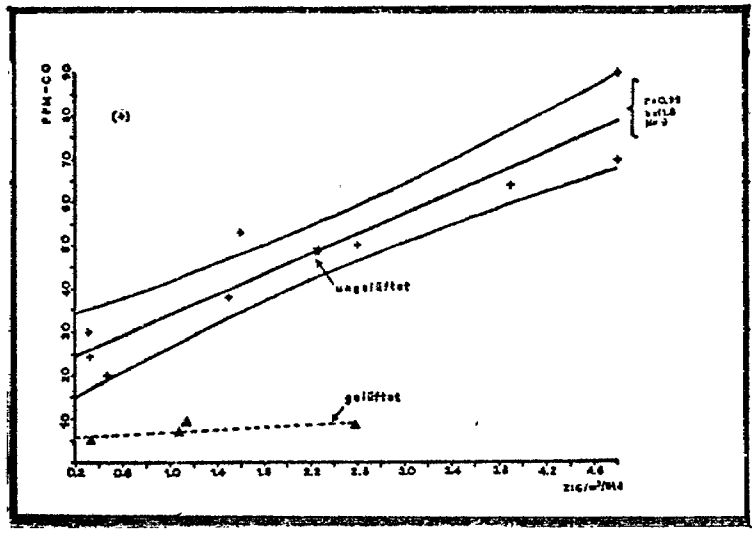
we denote that proportion of emission which is liberated when the tobacco is merely burnt, whilst the term main stream smoke implies that proportion of smoke which is sucked in through a mouthpiece. Air pollution caused by smoking tobacco products to which any non-smoker present is exposed, thus consists of the complete side stream smoke, and of the main stream smoke ultimately exhaled by the active smoker; the latter is filtered to various degrees, depending on the depth of inhalation. According to measurements by Dalhamm et al. (1968), 86-99% of volatile and particulate main stream components are retained in the lungs, together with about 54% of inhaled carbon monoxide. Of the tobacco smoke components which have so far been identified with certainty and which constitute only a fraction of the substances actually emitted with tobacco smoke, mainly the following are toxicologically and hygienically significant: Carbon monoxide, nitrogen oxides (NO and NO_2), nitrosamines, aldehydes (acetaldehyde, formaldehyde, acroleine) and ammonia, together with polycyclic aromatic hydrocarbons, nicotine and phenols. Measured values from smoke-laden rooms are presently available in greater numbers for carbon monoxide, and to a more limited degree for nicotine, nitrogen oxides and some aldehydes.

Some results of CO measurements in smoke-laden rooms are represented in Fig. 1; these originate partly from investigations using very diverse methods. Apart from the works quoted by Harke (1974),



geluftet = ventilated
ungeluftet = unventilated
Zig/m^3/Std. = cig./m^3/hr

Fig. 1: Comprehensive representation of results from various investigations relating to the connection between relative cigarette density (cig./m^3/hr) and measured CO concentration in room air (Vol. ppm) in unventilated (full line) and ventilated enclosed areas (dotted line). Sources: Harke, (1974), Russel et al. (1973); Weber-Tschopp et al. (1976)

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investigations by Russel et al (1973) and by Weber-Tschopp et al. (1976) were also taken into account. Following a suggestion by Harke (1974), the measured CO concentrations (in ppm) are referred to relative cigarette density in Fig. 1, i.e. to the number of cigarettes per unit volume and time. The regression line with confidence limits (95%) refers to smoking tests in tightly sealed, unventilated rooms. Apart from one exception - the bracketed value in the upper left, an investigation by Harmsen and Effenberger (1957), which we have regarded as untypical and hence omitted from calculations - the results of these investigations agree that in unventilated rooms, likely CO concentrations are directly proportional to the relative cigarette density, that an increase of CO concentration by approx. 12 ppm may be expected when cigarette density is doubled, and that under extreme conditions - i.e. 100-120 cigarettes per hour for example in an unventilated room of $40m^3$ size - the MAC value for CO of 50 ppm may be reached.

Conversely, the measured values of two investigations (Bridge and Corn, 1972; Harke, 1970) shown in the lower part of the diagram, here connected by a dotted straight line, show that even with weak to normal ventilation ($15-33m^3$/person/hour), CO concentrations fall to values between 5 and 10 ppm, and that the increase of CO as a function of relative cigarette density is no longer very pronounced. These results are supported by measurements in offices under real life conditions, which yielded half hour mean values around 5 ppm (Harke et al., 1974).

On account of the small enclosed space, the problem of CO-loading by smoking of tobacco products in motor cars merits special consideration. In an unventilated, slowly moving (about 30 km/hour) motor car, increases in CO concentration by about 20 ppm above the initial load of about 5-10 ppm were measured when 2 cigarettes were smoked at the same time; with ventilation flaps half and fully open respectively, the CO increase amounted to 13.7 ppm and 10.7 ppm respectively. (Harke and Peters, 1974). When smoking had ceased, initial values were reached once again in no more than 2 - 3 minutes.

By comparison, only scarce data regarding the concentration of substances other than CO contained in smoke, are available. The results of two investigations with cigarette smoking by machine are summarised in Table 1.

The variables measured included nicotine, aldehydes such as formaldehyde and acetaldehyde, acroleine, together with, in one case (Weber-Tschopp et al., 1976), nitrogen oxide; under the conditions of this test, NO_2 was not generated. For comparison, corresponding MAC values are quoted in the last row of the table.

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	Luftg.	Maximalwerte					Autoren
Zig/m³/Std.	0/1	NO_x	Nikotin mg/m³	Aldehyde mg/m³	Acrolein mg/m³	CO mg/m³	
1.8 (150/170/0.5)	0	-	0.69	4.2 2)	0.38	58	Harke et al (1972)
0.36 (102/170/2)	0	-	0.19	1.9 2)	0.21	31	Harke et al (1972)
0.36 (102/170/2)	1	-	0.10	0.6 2)	0.04	10	Harke et al (1972)
1.5 (21/30/0.33)	0	2.7 1)	-	0.8 3)	0.50	47	Weber-Tschopp et al (1976)
MAK-Werte		3 4)	0.5	360 2) 1.2 3)	0.25	55	MAK-Liste (1976)

1) = NO
2) = Acetaldehyd
3) = Formaldehyd
4) = NO_2

Luftg. = Ventilation
Maximalwerte = Maximum values
Autoren = Authors
Zig./m^3/Std. = Cigs./m^3/hr
Nikotin = nicotine
Aldehyde = aldehydes
Acrolein = acroleine
MAK-Werte = MAC values
Acetaldehyd = acetaldehyde
Formaldehyd = formaldehyde
MAK - Liste = MAC - list

Table 1; Maximum concentrations of some harmful substances in unventilated (0) and ventilated (1) enclosed areas, depending on cigarette quantity relative to room size and time.

Closer examination of the values listed in Table 1 shows that the MAC values for nicotine and acroleine are reached and definitely exceeded respectively in unventilated, heavily smoke-laden rooms, but that this is not the case under the more realistic conditions of a ventilated room (approx. 400m^3/hour). Nevertheless it should be recorded that acroleine may easily become a problem in unventilated or badly ventilated rooms, due to its strongly irritant effect on mucous membranes and conjunctiva. We shall return to this later.

2. The absorption of substances contained in smoke by the non-smoking co-smoker

Having thus far exclusively talked about the emission situation in smoke-laden rooms, we shall now discuss what quantities of harmful substances can be absorbed by the non-smokers present. As far as we know, measurements or firmly based estimates exist for CO, nicotine and fine dust (0.1 - 1 µm) only.

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2.1 Carbon monoxide

The basis for estimating the toxic effect of CO is the amount of carboxyhaemoglobin, COHb, present in blood; the former is generated by competitive blockage of bond locations for oxygen, thus leading to a restriction of oxygen supply to the tissue; the cause of all known symptoms of acute CO poisoning is hypoxia (Antweiler, 1975). The height of the COHb level in blood is largely determined by the CO concentration of the outside air, the duration of exposure, the breathing volume per minute and the heart volume per minute, together with the endogenous formation of CO, whose cause is the depletion of haemoglobin and which accounts for 0.4 - 0.8% COHb. The kinetics of COHb formation under given conditions of exposure are well known; using the formula for 3 CO concentrations and an 8 - hour exposure on the basis of a breathing volume per minute of 10 l/minute, as developed by Coburn et al. (1965), it is shown in Fig. 2. The starting point of all curves is an endogenous basic level of 0.8% COHb. During an 8 - hour exposure to a CO room air concentration of 10 ppm, a value which might be considered as somewhat realistic (see Fig. 1), the carboxyhaemoglobin content in the blood of a passive smoker would rise by 1.6% in the mean during an 8 - hour day, i.e. by approx. 0.8% COHb absolutely. Based on values established by Russell et al. (1973) who found a mean COHb increase of 0.7% in smokers per cigarette smoked, this increase corresponds rather accurately to one

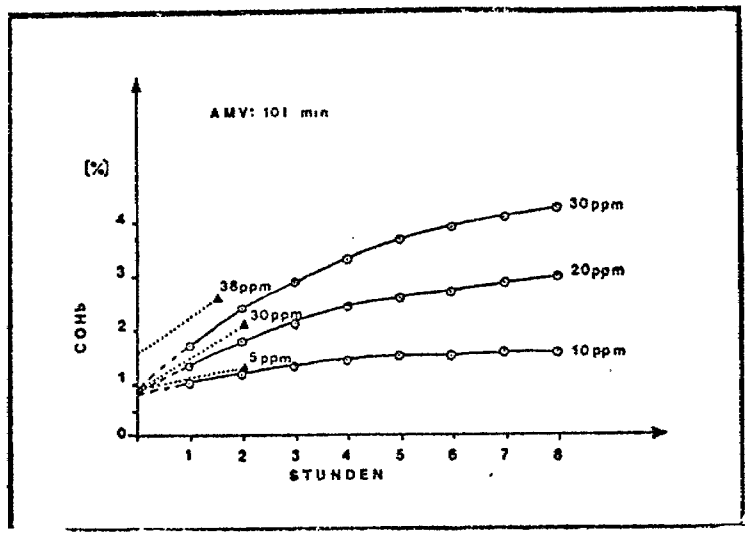

Fig. 2: Kinetics of CO formation, calculated after Coburn et al (1965) for three CO concentrations (circles). Triangles joined by dotted lines are based on COHb determinations in non-smokers exposed to tobacco (Harke, 1970; Russel et al. (1973).

AMV = breathing volume per minute
Stunden = hours

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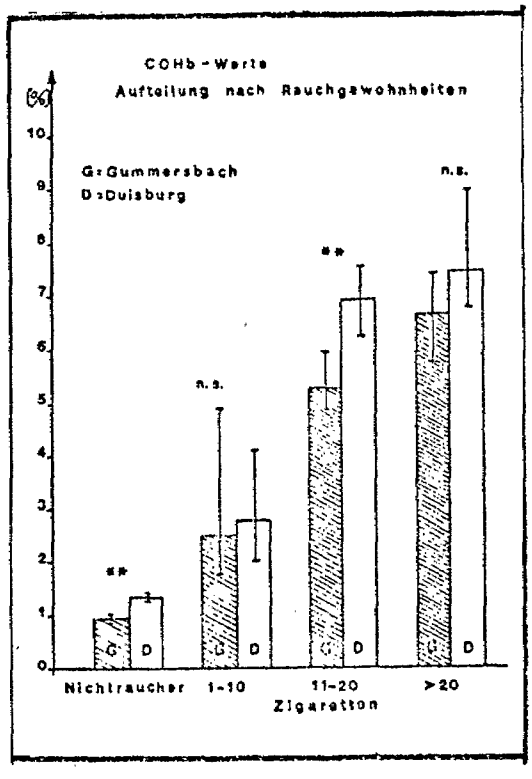
cigarette equivalent. Those values in the diagram which are joined by dotted straight lines refer to COHb measurements in non-smokers exposed to tobacco (Harke, 1970, Russell et al., 1973). They show that the calculated kinetics with respect to the increase can certainly be considered as realistic.

When estimating the likely COHb values in passive smoking, it is revealing to compare the effects of passive smoking on the one hand, with those of the emission loading in a large town on the other. Here we lean on the results of our own epidemiological investigations of about 1400 50 year-old males in the Oberberg district (Gummersbach) and the city of Duisburg (Rosovanu et al., 1976; Fig. 3).



Werte = Values

Aufteilung nach Rauch- Gewohnheiten = Distribution according to smoking habits

Nichtraucher = non-smokers

Zigaretten = cigarettes

Fig. 3: COHb of 50 year-old males from different smoker categories, from a rurally structured area (Gummersbach) on the one hand and a large town in the Ruhr district (Duisburg) on the other. Significant differences in mean value ($p<0.01$) between the areas compared, are

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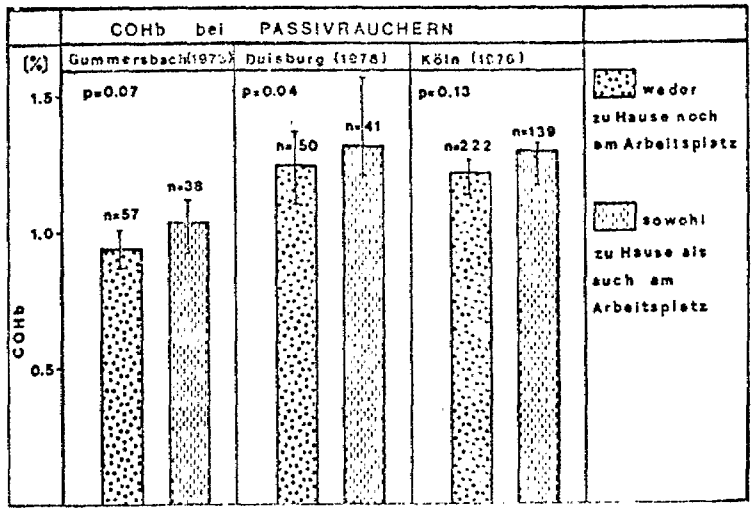
marked by asterisks (n.s. - not significant), from: Roscovanu et al. (1976).

Fig. 3 shows mean values and confidence limits (95%) of the carboxyhaemoglobin content of non-smokers, together with that of light, moderate and heavy smokers. In addition, values measured in a region of clean air (Gummersbach) are compared to those of an urban high density area. It can be seen that the mean COHb level of heavy smokers may be set at about 7% compared to about 1% in non-smokers, and that exposure conditions imposed by civilisation cause an increase in the COHb value in all smoker categories - even if this is statistically proven in two cases only - which must be set at about 0.3% COHb absolute and at about 30% relative increase. During an 8-hour exposure with 10 ppm CO in a smoke-laden atmosphere, a possible CO increase by 0.8% to 1.6% had been calculated for passive smokers, which would correspond to one cigarette equivalent. In fact, the chronic COHb increase measurable in passive smokers under real-life conditions is significantly less than 0.7% (Fig.4).



bei Passivrauchern = in passive smokers
Koln = Cologne
weder zu Hause noch am Arbeitsplatz = neither at home nor at the workplace
sowohl zu Hause als auch am Arbeitsplatz = both at home and at the workplace

Fig. 4: Comparison of COHb values of 50 year-old male non-smokers, who are passively exposed to tobacco smoke a) neither at home nor at the workplace, b) both at home and at the workplace (Roscovanu et al., unpublished data).

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Relevant results of three epidemiological investigations conducted by us last year with 50 year-old males in Gummersbach, Duisburg and Cologne, are reproduced here (Roscovanu et al., in preparation). Apart from demographic and biographic characteristics, enquiries were made concerning smoking conditions and passive exposure to tobacco in domestic and work surroundings. One notes that persons who are forced to unwillingly inhale tobacco smoke both at home and at their workplace, exhibit higher blood-CO-values in all three areas questioned than those for whom this is not the case, either at home or at work. Collectively, the difference for all three investigations is statistically high at the 1% level, but absolutely the COHb increase of about 0.1% must be qualified as low. The COHb increase occasioned by urban exposure conditions is certainly far more pronounced (see Fig. 3).

2.2 Nicotine and fine dust

The nicotine intake of a passive smoker may be estimated on the basis of the level of nicotine in the blood and also on the basis of the amounts of nicotine and cotinine secreted in urine. It has been shown in table 1 that in smoky rooms, nicotine concentrations between 0.1 and 0.69 mg/m^3 may be attained; these values are above the MAC value of 0.5 mg/m^3, but only under extreme conditions.

Now if we assume that a smoker takes in 1050 µg of nicotine (Klosterkoetter and Gono, 1975), then on the basis of a breathing volume per minute of 10 litres and a nicotine - room-air - concentration of 0.1 mg/m^3 with a passive smoker during a time of 10 minutes taken to smoke one cigarette, we arrive at a nicotine intake of 7 µg, and of 336 µg over 8 hours, corresponding to 0.32 cigarette equivalent (sample calculation after Klosterkoetter and Gono, 1975). In a similar way, Klosterkoetter and Gono, for the particulate mass (particle size 0.1 - 1.0 µm), arrive at a dust retention corresponding to 0.24 cigarette equivalent during an 8 hour stay in a room polluted with a particle mass of 1 mg/m^3.

3. Acute and chronic effects of passively absorbed substances contained in smoke

Investigations concerned with the short-term effects of substances contained in smoke on the passive smoker are available from both Harke and Bleichert (1972) and Weber-Tschopp et al. from the working group of Grandjean at the ETH Zurich. Harke and Bleichert (1972) investigated the ECG, pulse frequency, blood pressure and skin temperature in non-smokers within a heavily smoke-laden room (CO concentrations up to 60 ppm max.). Changes in these parameters, which are often influenced in the active smoker even after the first drafts of smoke on account of the intermittent nicotine intake, could not be detected. This result is in agreement with the reasoning given above, i.e. nicotine absorption in passive smoking must be considered unimportant compared to active smoking.

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The nuisance effect assumes special significance amongst the acute effects of tobacco smoke on the non-smoker who is present. Quantitative data relating to this complex of effects, which is difficult to objectify, may be extracted from a more recent paper from the Institute for Hygiene and Work-physiology, ETH Zurich (Weber-Tschopp, et al., 1976). In this investigation, 9 smokers and 24 non-smokers were exposed to the side stream smoke from 20 machine-smoked cigarettes for 21 minutes in an unventilated cabin of 30m^3 size. The degree of nuisance and the extent of irritation of conjunctiva and nasal mucous membranes were scaled continuously on to given rating scales. Frequency of eyelid closure, pulse and percentage expiration volume (% FEV_1/VK), and the mean expiratory strength of breathing, were registered objectively. Even after only 5 cigarettes had been smoked, corresponding to a CO concentration of 12 mg/m^3 or an acroleine concentration of 1.13 mg/m^3, irritative effects eventuated to a significantly increased extent in mucous membranes and conjunctiva. Above these values, the frequency of eyelid closure also increased steeply. Due to the good correlation between the measured harmful substances, the authors refer to CO as the typical substance in their conclusions. They are of the opinion that a nuisance threshold is exceeded at 12 mg CO/m^3. In doing this, they explicitly point out that even more severe yardsticks might be required for allergic persons and those with diseases of the breathing passage. As far as we know, this investigation is the first and, at present, most consistent attempt to consider limiting values for the protection of the passive smoker from the nuisance aspect exclusively.

From toxicological aspects, the chronic exposure of passive smokers merits particular interest. Available data are still extremely sparse. In particular, there are no epidemiological diagnoses relating to a probable prevalence of bronchial carcinoma in passive smokers. On the other hand, the situation is somewhat better as regards empirical data of effects of chronic passive exposure to tobacco on favourable conditions for diseases of the breathing passage, and restricted lung function in children. In several epidemiological investigations by Cameron and co-workers (Cameron, 1967; Cameron et al., 1969; Cameron and Robertson, 1973), based on questioning by telephone, it was possible to establish a prevalance of diseases of the breathing passage in children of parents who smoked.

The tendency of these results is supported by our own epidemiological investigations in schoolchildren, which were carried out in the towns of Rheydt, Duesseldorf and Duisburg (Dolgner et al., unpublished data). In each of these towns, 5 primary schools were chosen according to their proximity to established testing establishments, and pupils of grades one to four were included in the investigation. In a questionnaire to be filled in by parents, one of the items on which information was asked for was the smoking habits of the latter. Correspondingly those households in which smoking took place regularly were distinguished from those where this was not the case. In all

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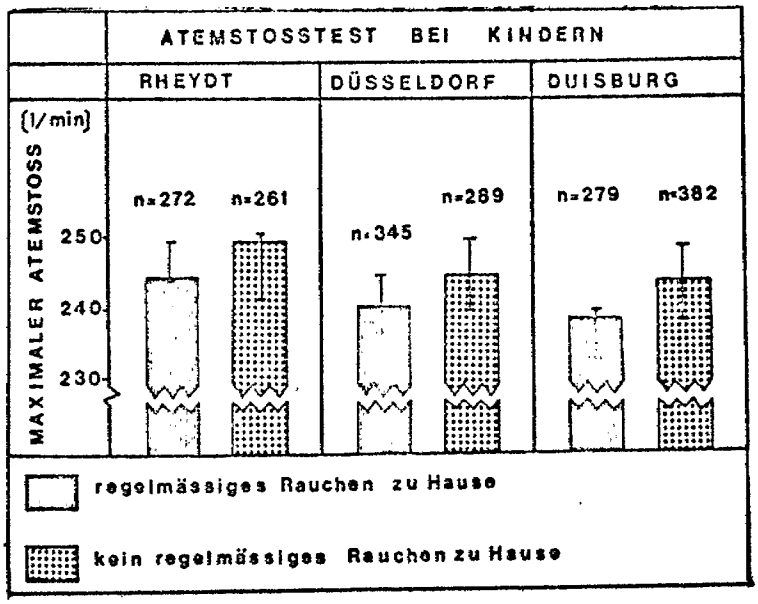
children, the maximum exhaling flow in litres/minute was measured with the peak flow meter as a single variable of the breathing function. This breathing test shows up moderate impairment of lung function connected e.g. with asthma, chronic bronchitis and emphysema. Deviations from the norm upwards of 10 litres are considered clinically remarkable.

Values from boys domestically exposed were lowered in all three areas (fig. 5); this was not the case with girls, who must be considered to be generally less sensitive in this respect according to our results.



Atemstosstest bei Kindern = breathing test in children
Maximaler Atemtoss = maximum breathing rate
regelmassiges Rauchen zu Hause = regular smoking at home
kein regelmassiges Rauchen zu Hause = no regular smoking at home

Fig. 5: Maximum exhaling flow (peak flow measurement) in boys aged from 6 to 10 years, domestically exposed/not exposed to tobacco, in the towns of Rheydt, Duesseldorf and Duisburg (Dolgner et al., unpublished data).

Differences are small in all areas questioned, between boys domestically exposed and those not exposed to tobacco - on an absolute scale - in Rheydt and Duesseldorf, these amount to about 4 litres/minute respectively, and about 7 litres/minute in Duisburg. However, the functional impairment lies, viewed statistically, definitely at the 5% level in boys exposed chronically. As far as we know, this represents the first objective proof of a functional disorder in children caused by chronic smoking.

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4. Conclusions

In accordance with the results presented here, there is at present no reason to assign an effect to passive smoking which is even remotely comparable to that produced by active smoking.

During an 8 hour exposure with 10 ppm, the CO intake by passive smoking may correspond to one cigarette equivalent, i.e. an absolute COHb increase by 0.8%. In fact, even in passive smokers we were able to detect a mean excess in COHb level of merely 0.1% approximately; in contrast, the average COHb excess caused by the effects of civilisation is about 0.3% absolute or 30% relative. From these values alone, it is difficult to derive any health hazard from passive smoking, because the first disorders due to CO subsequent to acute influence occur only from about 2.7% COHb in persons suffering from angina pectoris (Aronon and Isbell, 1973), and arteriosclerotic changes of arterial walls in rabbits fed with cholesterol became obvious only at COHb values between 10% and 18% (Astrup, 1973).

Nicotine absorption, which may be taken as about 0.32 cigarette equivalents under realistic conditions during an 8-hour passive inhalation of tobacco, may probably also be considered as toxicologically insignificant because the pulsating advection to the system which is typical of active smoking in particular and important for the toxicological potency, cannot occur under passive smoking conditions.

A medical assessment of fine dust - retention, assumed to be about 0.24 cigarette equivalents in 8-hour passive smoking, presents considerably greater difficulties since reliable quantitative data on the concentration of carcinogenic substances in smoke-laden rooms are still very sparse at present, and no epidemiological data on cancer risk in passive smokers exist at all. Additional knowledge is urgently required here, so that we are finally able to step off the unsafe ground of purely speculative considerations.

Irritant gases demonstrable in tobacco smoke, such as nitrogen oxides, aldehydes, acroleines and ammonia are, together with odour-intensive components, the basis of the nuisance effect emanating from tobacco smoke; but at the same time, they also form a basis for the prevalence of disorders of the breathing passage and the proven inpairment of the breathing function in children, who are chronically exposed in domestic surroundings. In view of the effects of passive smoking, these obviously represent a particularly sensitive group.

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DISCUSSION

Paper by Valentin

Paper by Vorndran

Paper by Klosterkoetter

Paper by Schlipkoeter

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D. Szadowski:

Mr. Klosterkoetter has addressed our inquiry twice. We have made investigations in an insurance company - an insurance company which is probably amongst the biggest in the Federal Republic - in a company where mainly office staff are working. The number of cigarettes smoked during working hours, i.e. during 8 hours - the theme to which Mr. Klosterkoetter had addressed himself - amounted to about 8 cigarettes on average, i.e. about one third of the cigarettes smoked per day on average.

I would also like to add something to the paper by Mr. Schlipkoeter who was of the opinion that urban environmental conditions, as regards carbon monoxide, far surpass conditions of passive smoking. This was the case in our investigations. We have measured mean carbon monoxide concentrations of about 2.8 ppm in rooms where smokers were present; in rooms where only non-smokers were present and which were, at the same time, situated in a park, we have measured CO values near 1.6 ppm; and in rooms which again were occupied by non-smokers only but which were situated at a main road with dense traffic, we have measured CO concentrations of more than 6 ppm, i.e. more than twice as much as in rooms where smokers were present.

E. Schaetzing:

In speeches made in this house the concept of the "unventilated room" has been mentioned so often that I have the impression that it might all be not so much a problem of smoking, but rather a problem of ventilation. I have a question in this respect. We have, indeed, two different types nowadays. We have fully air conditioned rooms; in principle, the air remains within these rooms. Then we have the old method: Open the window! So-called fresh air from outside will then come in at once in bursts, and the particle-laden air is expelled by it. Which is better?

W. Klosterkoetter:

I have assumed known workroom-regulations according to which the minimum air volume/person and minimum air rate (changes per person per hour) shall be 10m^3 and 30m^3 respectively. A minimum air volume of 15m^3 is recommended for light sedentary work. Thus a room of 30m^3 volume would be a normal workroom for 2 persons, in which the air must be changed twice per hour. All concentrations (constituents of smoke) generated in such a room in one hour, must be referred to the total air volume (3 x 30m^3).

A normal room with closed doors and windows is usually still subjected to one air change per hour; the air change lies below 1 in very tightly sealed rooms only. In large air conditioned offices, the CO must be watched, if it is not absorbed from the surrounding air.

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This has also been investigated in submarines where smoking takes place, in both France and the U.S.A. In nuclear powered submarines which stay submerged for long periods, CO must be removed from the surrounding air; in American submarines the limiting value as far as I know - lies at 35 ppm.

Ventilation problems must be viewed differently. In small office rooms without artificial ventilation, we know that one makes do with temporary opening of windows, even in cold weather. This quickly lowers any excessive smoke concentration. Our Swiss colleagues (Mrs. Dr. Weber is present) have made their smoking tests in a very tight climate chamber in which no significant air change took place. Harmful substances are then accumulated rather quickly, and removed slowly. Naturally, this does not occur in general workplace situations.

D. Schmaehl:

Because I have been quoted repeatedly by both speakers, I would like to say a few brief words relating to the problems under consideration; in doing this, I would like to comment only on a possible hazard from passive smoking as regards bronchial carcinoma, and put aside all other questions. From the toxicological standpoint, and considering possible carcinogenic constituents in tobacco smoke, we have to distinguish principally between two different types, i.e. carcinogens with a pronounced local effect and those with a resorptive-systemic effect. The decisively important constituents in tobacco smoke are quite obviously those with a local effect; because according to all statistical data, only inhaling smokers tend to increased development of bronchial carcinoma. With such locally effective constituents, we are in all probability dealing with aromatic hydrocarbons of the benzo(a)pyrene 3.4 type, to which we have to assign the decisive carcinogenic effect. In addition, if may happen that irritants of the acroleine and cyanide type damage the bronchial mucous membranes first, which leads to loss of the epithelial flicker function and hence, to a loss of self-cleaning capacity of the bronchus. This brings about a reconstruction from cylinder epithelium to plate epithelium after the chronic effect of such broncho-toxicological substances, which is probably the reason why carcinogens of the benzo(a)pyrene type may become effective at all.

Now, what about quantitative relationships? We know that an inhaling smoker retains about 90% of the carcinogenic constituents of hydrocarbons in his lungs, and exhausts only about 10% afterwards. The non-inhaling smoker retains only about 1% of hydrocarbons in the oral cavity.

Now if we find - and this is crucial - a risk of bronchial cancer practically only in inhaling smokers, then it should follow that the non-inhaling smoker is exposed to greater dangers compared to the passive smoker. This is not so, however, because we know that pipe or cigar

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smokers who, according to experience, do not inhale, do not carry an increased risk of bronchial cancer. This alone might demonstrate that the passive smoker is obviously not in danger as regards the risk of bronchial cancer. This emerges from all statistics too. The risk apparently begins only when 5 to 10 cigarettes are inhaled. A further contributing factor is the fact that the passive smoker quite obviously prefers to breathe through the nose, thus utilising his nasal filter; whilst the smoker who inhales, brings the smoke directly into the bronchial tract without a nasal filter.

Thus I would like to state in summing up: On the basis of available statistical results too, it is not possible to recognise a hazard to the passive smoker as regards the risk of bronchial cancer.

H. Valentin:

Thank you very much, Mr. Schmaehl, I think that this contribution was important, because it raised the question of carcinogens.

K. Holl:

May I just slightly correct the value from the U.S. Navy just mentioned by Mr. Klosterkoetter. According to data available to me, 25 ppm apply for CO at the moment and there are recommendations to decrease these to 15 ppm.

W. Klosterkoetter:

Thank you for the correction; I had read 35 ppm somewhere.

G. Fruhmann:

What we have heard so far sounds really quite optimistic for passive smokers. I would like to register some uneasiness, however. Firstly, the reason for this is the contribution by our colleague Mr. Schmaehl. It is not correct that tobacco smokers who smoke cigars and pipes, do not show an increased risk of bronchial cancer. All the investigations of the Terry Report speak against this. Nobody at all has today talked about cancer of the oral cavity, the digestive tract and the larynx, although it is known that even pipe and cigar smokers run an increasing risk of contracting these forms of cancer. I think we should continue to remember that we have, in fact, collected experiences with some substances in regard to cancer risks over the last years; we have so far assumed these substances to be harmless, only to find that they had a considerable carcinogenic effect on humans. Thus I would advocate some caution, also in view of the graphs by Doll and co-workers which indicate that even smokers of 1 to 14 cigarettes have the risk of bronchial cancer increased by a factor of 8 approximately. The following may be mentioned in passing: According to our investigations, if one isolates and tests groups from the working population, there are not 40 but 80 percent smokers.

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This would mean that the quoted cigarette equivalent for the passive smoker would at least contain a factor of 2.

To our colleague, Mr. Schlipkoeter regarding his second diagram I want to say that I would have also liked to discuss those papers which do not, as is the case here, come from workers in the cigarette industry to the tune of 75%. For example, I have in mind the work of our colleague Mr. Hess here in Munich relating to disorders of peripheral arteries in waitresses. I know that these obviously are not sufficient proof, but I think they are nevertheless worthy of discussion.

W. Klosterkoetter:

Mr. Fruhmann, during a "Pro and Contra" program of 18.12.1975 Mr. Hess has expressly stated that he could not maintain his earlier deductions, because his calculations were based on nicotine values obtained by dubious methods long since obsolete. In this program, he pronounced passive smoking to be not hazardous to health.

H.-W. Schlipkoeter:

I did not mention these values because I believed that they are no longer topical nowadays.

G. Fuelgraff:

Mr. Schmaehl, I do not doubt the statistical data quoted by you. I have a somewhat theoretical question for you; nevertheless, it may play a role in our reflections in this connection; the question is whether there exists any no-effect level at all for carcinogenic effects or, expressed differently: Is there a dosage threshold for carcinogens, below which carcinogenic substances are not carcinogenic with unlimited duration of exposure?

D. Schmaehl:

Firstly, I would like to reply to our colleague Mr. Fruhmann and say the following: Of course the risk of contracting cancer of the larynx and oral cavity is considerably increased in cigar and pipe smokers. But here again the smoke acts in concentrated form on the affected organ, i.e. larynx in this case, over a period of years. And there is no investigation - i.e. none is known to me - which would have indicated on an epidemiological basis, that passive smokers run an increased risk of contracting oral and larynx carcinoma. An interesting Swiss paper from Berne has recently appeared, in which it is made public that even cigar smokers run an increased risk of contracting lung cancer in particular if one considers the manner in which the Swiss smoke cigars. We are obviously dealing with people - personally, I do not smoke and am thus unable to judge - who hold the cigar in the mouth during the complete working period and thus continuously inhale the side stream smoke. Thus the Swiss authors arrive at the very clear result that apparently the inhalation of cigar smoke is the decisive

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factor in these cigar smokers too. This is not surprising when one knows that in cigar smoke, the concentration of e.g. benzo(a) pyrene is about four times higher than in cigarette smoke.

Now to Mr. Fuelgraff's question! I would be glad if I could answer it. I am nearly tempted to say that it is a question worthy of a Nobel prize. There are authors who state that there is a threshold value; there are other opinions stating that there is none.

The question cannot be resolved unambiguously by experiment. I would like to say, in quoting an English colleague, that without a doubt, sunlight must also be considered carcinogenic to the skin, but an overwhelming portion of people in our latitudes does not contract skin cancer, in spite of sometimes very intensive exposure to sunlight. There must therefore obviously be a threshold value of this carcinogen for our skin. Whether or not this applies to other substances as well cannot be decided at the moment. Many further investigations are required here.

H.-W. Schlipkoeter:

May I add the following to Mr. Schmael's question:

1. Cigar smokers and pipe smokers are not a homogeneous group. When someone has formerly smoked cigarettes and then ceased for a few years, only to start again at a later date with cigars and pipes, then he will be, even if he does not notice, always an inhaling smoker. In these persons, COHb values above 5% in the bloodstream may be demonstrated even after one cigar. Smoking cigars and pipes is relatively harmless only for those people who have not smoked cigarettes previously.

2. You spoke frequently of benzo(a)pyrene. I just want to stress once again that according to the investigations by Grimmer, with which you are familiar, benzo(a)pyrene is responsible for carcinogenic potency in less than 1% of cases, and that the remaining polycyclic hydrocarbons together possess a much higher carcinogenic activity. I only mention it in this assembly so that no misunderstandings arise.

D. Schmaehl:

I agree completely with Mr. Schlipkoeter.

H. Valentin:

Who wants to speak next? - Sir!

T. Fischer:

I would like to make just one remark on the paper by Mr. Klosterkoetter. He has stated that no NO_2 was found in the main stream smoke.

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This is not quite correct. Nowadays it really appears as if only very little NO_2, but relatively much NO is generated during the smoking of one cigarette. NO_2 is mainly formed by conversion of NO. A prerequisite for this is either UV-light which is in enclosed areas in minute amounts only, or alternatively NO concentrations greater than 1 ppm. NO concentrations of this magnitude occur practically never in side stream smoke, but certainly in main stream smoke, where NO_2 is thus formed subsequently.

I would like to point out something else. There are about 8000 substances contained in tobacco smoke, of which probably one half have been identified. We know that reciprocal effects between many substances may occur in smoke. Irritations too may be triggered by the combined effect of several substances. At present we still do not know the nature of these reciprocal effects (summations, exponential growth, cancellations). An assessment based on a few isolated substances with corresponding MAC values is thus possible only with provisos.

Mr. Klosterkoetter:

Mr. Fischer, in the paper from Zurich an old literary source on NO_2 was quoted, which is queried by competent and experienced expert chemists in Germany. I have received this information a few days ago during my holiday in Switzerland, it is thus most recent, perhaps we should have a personal talk about this.

H. Valentin:

Many thanks! Who would like to speak next? - Please go ahead, Sir!

P. Hanau:

I am a lawyer and am therefore able to take part in this section of the discussion by questioning only. I have the following questions:

When thinking of our working lives, is it not important that we often have air spaces already loaded with other harmful substances? Hence my first question: Does the addition of passive smoking to an existing loading by harmful substances play a role in working life and if so, typically where? May I confess that the present state of the explanations leaves me confused, and I would be grateful if, perhaps somewhat according to a rule of thumb, the following statement could be made: It does not exist at all or perhaps, if it exists, in which situations of life must we consider that, because of other loadings, a problem does already exist after all?

Second question! It has just occurred to me. Passive smokers will also include past active smokers, i.e. people like me who are now happy to slowly get rid of the effects of smoking. Question: In this situation, can passive smoking affect this very beneficial process; of the latter, I always read with particular pleasure in

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the literature that things will improve when one finally stops smoking? And now the third question, which is of immediate concern to the lawyer who, indeed, views the whole situation as a problem of proof! The fact is that a type of guerilla warfare is taking place in working life after all. There are many non-smokers who complain in this situation and become active, who approach the employer. This probably falls within the region which was denoted by "nuisance" by both speakers. Both gentlemen have also said that there are cases occasioned by disposition or environment, where one must reckon with considerable stresses. Mr. Klosterkoetter has even said - unfortunately too briefly for a lawyer - that this could be objectified by social/psychological questioning. My question would be: If somebody comes along and says, I am under considerable stress, can one then say with a clear conscience: Well, see a doctor! Either you will get a certificate, then we believe you, or you will not get one, then you are supersensitive or even ideological. Or are we bound to accept that there are classes of people of which we have to believe that they feel disturbed in certain conditions. It is important in working life that we can objectify with sufficient practicability the concept which both gentlemen, wholly in accord with the terms of more recent worker safety laws, have described as "significant nuisance".

H. Valentin:

Many thanks! Three questions have been put. The first question relating to loadings due to other harmful substances at the working place I can answer from the aspect of occupational medicine. A great change has taken place here. In particular, large chemical industrial concerns report again and again, we have only a few occupational diseases due to chemical causes still occurring, because our operations are fully automated, and because monitoring, controlling, etc. is carried out anyway. The situation becomes more difficult for medium and small industries, and with consumers and users. Loadings by harmful substances occur more frequently there. Mr. Antweiler, you have done work in the synergism field.

H. Antweiler:

There are workplaces, and not too few at that, where dichlormethane is liberated, and according to investigations made in our institution by our colleague Mr. Fodor, and according to investigations by Stewart in the United States, it is certain that a rise of the COHb level in blood by 8% to 10% may occur when dichlormethane reaches the MAC value approximately. If this COHb content is additive to that which derives from smoking, say - and you have heard that in a heavy smoker it reaches up to 15%, in extreme cases even 20% - a COHb level is brought about which definitely gives reason for concern.

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D. Schmaehl:

Not in passive smoking!

H. Valentin:

Are these larger groups of people under stress, Mr. Antweiler?

H. Antweiler:

I cannot quote figures on this; but I know that dichlormethane plays a big role in the chemical industry at present. Perhaps there is someone present who knows more about this and who is able to give quantitative information.

D. Szadkowski:

Amongst other things, we have generated dichlormethane loads, admittedly with a small number of rats only. But at the moment, I cannot give concrete figures about an increase of the COHb content.

The first part of Mr. Hanau's question regarding the combined effect of different substances, is a very typical question in occupational medicine. Unfortunately, we are as yet unable to quote concrete figures. But one can, I think, say one thing with a certain probability: Adding harmful substance A and harmful substance B does not double the toxicological effect. Hence the latter will not be additive according to the very vague results hitherto obtained.

Results of an exponential effect of cigarette smoke too, are available from one area. This is the simultaneous exposure to asbestos. In this respect we know from American tests that people exposed to asbestos who also smoke, run a higher carcinoma risk.

D. Schmaehl:

Actually, it has been said already. I merely wanted to draw attention to asbestos also, and particularly to the comprehensive investigations of Mr. Selikoff; he has shown that when asbestos and tobacco smoke are inhaled together, an additive effect occurs inasmuch as in this combination group the bronchial cancer risk compared with groups having one toxic constituent only, is distinctly higher. As far as I know, no results are available for passive smoking.

H.-W. Schlipkoeter:

There are indeed no data regarding the combined effect of harmful substances in passive smoking. Everything we have just heard related to active smoking. One can very well imagine that irritant gases like nitrogen dioxide and acroleine may combine with other irritant gases generated at the workplace. One can also imagine that dust

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suspensions which occur at the workplace, are additive to those that are liberated during smoking. But up to now there is no information or well-based estimate.

Regarding the "guerilla war" you just mentioned and regarding the question of a nuisance, both of us have explained that there are in fact persons who are particularly sensitive. There are asthmatics who are subjected to high stress through passive smoking at the workplace, and there are persons with chronic bronchitis or heavy colds who cannot tolerate this irritant effect of tobacco. This question of stressing plays a much bigger role in outside air: there we know the large differences in stress reaction within the population. In my opinion, the MIC values should form the basis for restricting smoke constituents in a workroom, although these MIC values also take into account the reactions of sick people, infants and old people, i.e. precisely those persons with particularly weak resistance. The Zurich investigations quoted by me have shown that with CO, it is sensible to use the MIC value as a basis: Up to concentrations of 10 ppm CO - this is the MIC value approximately - hardly any irritant effects were established. Irritant effects did appear with higher CO concentrations, but restrictively it must be said that CO should here be considered as an indicator only.

I think it is unacceptable to apply MAC values to smoke constituents at the workplace.

W. Klosterkoetter:

The topic "nuisance" or "significant nuisance" is quite interesting. Nuisances can be established by questioning, indirect questions are usually used; the answers permit one to conclude if, and in certain cases to what extent a nuisance is present. The irritant effects quantitatively established by our Swiss colleagues represent a higher degree of nuisance.

As far as I know, in German law the "person of average sensivity" is presupposed in related questions. Now if during a smoking test, the majority of test persons or nearly all of them, with only one exception, do not yet feel inconvenienced by the tobacco smoke concentration, then in view of the human of average sensitivity, one might well say that no smoke nuisance exists as yet. The question whether the presence of just one person who feels inconvenienced by tobacco smoke as a matter of principle means that all other persons present must then forsake smoking, I shall have to return to the lawyers. I know of cases where the mere sight of smoke from a far distance has led to applications for a smoking ban; it was impossible for the applicants to be affected even by the smell of tobacco smoke. As medical men we can only say this: With a smoke loading of x cigarettes in a room of size y and an air change z, people of average sensitivity do not feel inconvenienced.

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To us the legal procedure in cases of extraordinary suspectibility to such loads, which incidentally, may well be simulated by attitudes, is an interesting question, but is not our concern. As a rule, I would suspect a significant nuisance to exist when distinct irritating effects occur which incidentally can be objectified.

K. Holl:

In this context may I ask another question of Mr. Klosterkoetter! In the literature, the definition of short-term values is sometimes discussed, and it is theorised that so-called sub-sensory reactions in humans are often possible far below toxicological doses and even far below the smelling threshold, and there are quite specific test rigs for this. Now I ask: In connection with the context just discussed, would it not be advantageous to pursue these things further and not leave this area to the lawyer?

G. Fuelgraff:

Before we now restrict our discussion purely to the question of nuisance produced by smokers, I would still like to return once more to the risk problem. Smoke constituents are carcinogens; this is undeniable. At most, it is extremely doubtful if there is a no-effect level for carcinogenic substances in the long-term effect. This is really a sufficient statement.

To evaluate the practical risk, one must ask: How valuable in fact are the epidemiological investigations that have been quoted here. We really only know a) active smokers and b) passive smokers; actually we do not have any non-smokers in our society; furthermore, we can distinguish only between active smokers and passive smokers, because amongst adults at least, there are no non-smokers in the sense of not even passive smokers. Epidemiological investigations show that active smokers apparently run a higher risk than passive smokers, and this is undeniable. But actually, I would like to know how anybody can, with this state of affairs, draw the conclusion from these epidemiological studies that passive smokers do not run a higher risk than someone who does not - not even passively - smoke. There are no such investigations - and really, I do not know how they could be made. Perhaps the only possibility is the testing of children, where apparently differences have been observed between passively smoking and non-passively smoking children.

W. Klosterkoetter:

With children, attention was first focused on certain phases in the infant age. Naturally, one does not know here whether the parents have actually "smoke-trained" their children in their arms or laps.

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Permanent disorders are unknown at present.

I have distinguished between long-term and short-term passive smokers. Actually it should be possible to study the relevant epidemiology, e.g. in couples with a long-term smoker and a non-smoker. It should also be possible to undertake a passive smoker - anamnesis. Here again, long-term passive smoking is of primary interest. There are distinct dosage-effect relationships for lung cancer in smokers. If any disorders at all occurred in non-smokers, then it should be possible to demonstrate differences between long-term passive smokers and short-term passive smokers or occasional passive smokers, e.g. in lung cancer, smokers leg, chronic bronchitis - to mention just these smoker disorders. We must begin to make such investigations in due course.

D. Schmaehl:

The question you have broached is highly interesting. There are, however, perhaps one or two population groups of which it can be said that they actually represent genuine non-smokers. These are e.g. the Mormons or Seventh Day Adventists, who live together in certain regions, e.g. Utah and who, during the course of their lives, will naturally travel to New York and will sit in a restaurant there in which smoking takes place; but by tradition, they grow up in a smoke-free living space, at least to a large extent. Now statistics are indeed available about these people.

The former are frequently quoted as a reference to the smoking population in matters concerning risks of bronchial carcinoma. Even in these people, it is not equal to zero. It is there, albeit to a considerably lesser degree than in the smoking population. I would also refer to some old statistics, i.e. those dating from times where there were practically no smokers. Here in the Federal Republic there are, indeed, pathological institutes with sectional statistics dating from about 1860. Bronchial carcinoma occurred just the same, even if they did so significantly less often than today.

H. Antweiler:

I would like to add something to Mr. Fuelgraff's remarks. He was of the opinion that, as far as he knew, there was no no-level effect for carcinogenic substances. But to this must be added that there are a number of experimental papers which do, in fact, show that there is a repair mechanism. The last paper in this respect was published in the autumn of last year by Swann and co-workers in the periodical Nature; by way of example, they have shown in very nice investigations that dimethylnitrosamine, when applied in fixed small doses to kidney tumours in rats, is an ineffective carcinogen Accordingly, there is a dependence on dosage, i.e. on concentration

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and time and type of application, i.e. in the case of humans, on time and method of absorption of small concentrations. It is however still probable, and many results speak for this, that a no-effect level exists for carcinogenic substances also.

G. Hall:

The previously mentioned children from smoking families are not subjected to a uniform exposure: Because apart from tobacco smoke produced by parents, they also inhale air which is more strongly contaminated by bacteria due to the chronic smoker's cough of the parents. This renders the epidemiological situation considerably more difficult. In any case, perhaps we could also extend the theme to the coughing smoker.

H. Valentin:

Who else would like to speak on this? - Perhaps I may make one comment. Mr. Fuelgraff, we should not leave the carcinogenicity of several substances in its present state. We must also incorporate the clinical aspects. We have a list of carcinogenic substances; about 30 substances are listed in section four of the MAC table. On reading in the publications of the Federal Bureau of Statistics that we have 24,000 bronchial carcinomas per year and that a total of 130,000 people die of malignant new growths; and on perusing the report on accident prevention of the federal government to find only 100 probably recognised cases, I have to state that we have here, amongst other things a problem of quantification. One must also consider the numerical discrepancy from a clinical aspect. It is a fact that we frequently meet patients - you may naturally say that all of them have smoked passively - who manifestly have bronchial carcinoma and say that they never smoked. Hence, the impression that the problem of cause is completely explained, must not be allowed to arise in public.

H. -J. Woitowitz:

I would like to support your remarks, Mr. Valentin. There is a very wide gap between the figure of about 150,000 cancer fatalities in the general populace per year on the one hand, and the official occupational disease statistics quoted by you on the other. Now to the question of clinical aspect! It must, indeed, be said here that the clinical worker is, first and foremost, a therepist; usually when he encounters e.g. a cancer patient with bronchial cancer, he surely does not systematically investigate its cause. Although thinking about the cause in a clinic - and you know this as well as I do - is, might I say, not completely neglected, it nevertheless lags far behind the curative aspect. Considering epidemiological reflections right here in the Federal Republic, where we have remarkably favourable cancer statistics for certain

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occupational carcinogens, perhaps these are the deeper causes which we should consider.

D. Schmaehl:

I would like to make one further short remark in this respect. Surely there is every reason for discussing the inhalation of tobacco smoke as cause number one of bronchial carcinoma. I think there is no argument about this and it is recognised all over the world. But when one sees, e.g. from an experimental basis, how it is possible to trigger off tumours in the most diverse organs with a multitude of highly carcinogenic substances in comparatively minute doses, substances which we probably absorb more or less frequently with our food, probably as a matter of destiny, then it would be wrong, I think, if one concentrated solely on the area of tobacco carcinogens and neglected other possible causes which could also come into question. I merely wanted to say that we should not blindly cast our eyes on one factor, but also take note of those things which lie on the boundaries of carcinogenesis.

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CONSTITUTIONAL LAWS FOR ACTION AND DEFENCE WITH
CONFLICTING INTERESTS ON THE SAME LEVEL
J.H. Kaiser

The coexistence and cooperation of people who are different, different in skin colour, sex or because they smoke or do not smoke, becomes a legal problem primarily when a conflict arises and mechanisms for a solution outside the law do not function any more. Judging by the result of the discussion I am indeed certain, Mr. Secretary of State, that it is possible for a lawyer to find precise answers to questions of health hazards in the above case.

Thus the lawyer is consulted mainly when a conflict eventuates. If, to give an example, the attraction between the sexes decreases and aversion prevails, those relevant legal standards which decide the conflict are invoked, by ultimately splitting up the marriage. Do smokers and non-smokers have to be split up too? As we have heard before, a public administration can indeed decree just that within its area of competence. But I shall show that even the possessor of executive power in the area of public administration is bound to observe certain limits, beyond which he must not transgress. Certainly, voices are raised in both the literature and in court verdicts requesting a separation of smokers and non-smokers and, at least, a wide extent of protection for those who do not smoke. The circumstances always appear to be complex, particularly when sociology and psychology are asked to comment, apart from medicine. When a conflict between smokers and non-smokers arises and that law is invoked, by which the conflict is supposed to be decided, then the task of the executive lawyer may also be formulated in the language of those other social sciences, which present the complex circumstances in a language which is often complicated. Applying the law - so one might say - requires the reduction of complexity, or in legal language:

The subsumption of a specific and often very complicated set of conditions under a general norm; and the general rules of law are usually very simple since they are meant for everyone. A legal acknowledgement firstly reduces the circumstances to the right to smoke in public, and the right of the non-smoker to protection from passive smoking. Even this confrontation comes down to simple questions of basic law when - and this is my topic - the crux of the matter is a mutual confrontation on an equal footing, not one within the hierarchical system of some public administration. Special rules exist for private workplaces and for the public administration. This is, however, a marginal topic for me.

The right of a smoker is part of the general right to freedom of action - Art. 2 Sect. 1 of the basic law - and one must establish the limitations of this law. Legal protection from passive smoking is understood by some as protection of health, which is undoubtedly guaranteed by Art. 2 Sect. 2 of the basic law - right

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to life and physical safety. Whether one can, in fact, deduce a claim for a smoking ban for the protection of the non-smoker from this Art. 2, depends on the question whether passive smoking is a health hazard. In this case the legal decision depends on the answer given by the medical expert. In legal discussions of past years and in particular with variable importance, through well-known decisions - Administrative Court Slesvig, Supreme County Court Stuttgart and Admin. Ct. Berlin - this question has indeed attained another dimension; the latter has been rightly stressed already and is the protection of our environment; environment not only as a collective but possibly individual legal body also, often connected with the bold question of an individual right to an environment which is free of tobacco smoke. The question has been asked and I believe that the existing laws permit a clear answer to it.

In this context, it is sometimes pointed out in discussions that Art. 2 Sect. 1, basic law, should be seen as some kind of protective law. Regarding this topic I would like to say even now that I do not see this as a solution. Art. 2 Sect. 1 of the basic law cannot be utilised by non-smokers to protect themselves from passive smoking; because it is not possible to develop any basic social legal effect against third parties via the general right of freedom of action. Our colleague Wischnath has appended the relevant constitutional statements for us in the appendices of his manuscript. Here I refer also to Art. 1 Sect. 3 of the basic law quoted by him:

"The following basic rights commit legislation, executive power and jurisdiction as directly valid law". They do not commit the smoker.

In this sentence I summarise what I have just said, i.e. that it is not possible to deduce a social/state basic right of a non-smoker from the basic right of Art. 2 Sect. 1, basic law. Due to lack of time, may I be allowed to refer you to an essay by Scholz in the periodical "Jus" 1976, pp. 232 -, for details of proofs; in agreement with the opinion put forward by myself, he quotes a series of proofs of the latter too.

Now to the question of protection of freedom! Does Art. 2 of the basic law grant a direct individual right to a smoking ban to a non-smoker? Or in other words; Is it permissable for the judge nominated by the non-smoker to refer directly to Art. 2 Sect. 2 of the basic law? Different from this is the question whether it is possible by legislation to establish rules for the protection of passive smokers, maybe because the possessor of legislative power intends to protect the non-smoker as a precaution, since the former cannot, in certain circumstances, completely exclude a negative influence of passive smoking on one's health - and we find this reasoning in many recommendations or decrees of public administrations -; or it may be that the legislator merely wants to prevent a more or less intensive irritation by passive smoking. Obviously it is possible for the possessors of regulatory powers, i.e. the legislators in the widest sense - including the person who issues decrees and the one with legislative power such as may be found

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e.g. on medical boards - obviously it is possible for the possessor of such regulatory powers to set up rules which, indeed, are to prevent irritation of non-smokers. However, he and every legislator including public administration, must also bear in mind the interests of smokers. These interests of smokers are guaranteed in the general basic right of freedom of action. There it enjoys a firmly defined constitutional protection which is immovable and modified continuously by supreme judicial decisions in the spirit of the free constitutional State.

In addition to this right of the smoker, thus anchored in the basic right of freedom of action, to smoke even in the company of others - we still have to discuss the limitations of this right - and following what you, Mr. Secretary of State, have said about social adequacy, I would now like to point out a further restriction for any legislator. Certainly one must not, as you too have stated, strain social adequacy too much. On the one hand, social adequacy is a legal term of great significance in punitive and labour law. In fact, it is what we are concerned with. For example, the question of the relationship between social partners is determined largely also by the legal concept of social adequacy; in this I can refer to the continual jurisdiction of the Federal Labour Courts. Social adequacy is a legal concept, and in one of the speeches - I think in the one by Mr. Klosterkoetter - I found a significant remark in this context, i.e. that smoking is recognised as a method of relaxation. This "recognition" is a significant element for a lawyer. It is a central concept of international law. According to Schindler, relationships between social partners are basically determined by the same views as international law, because labour law is, in part, still an elementary law. Furthermore, the legal concept of social adequacy is also flanked on both sides by the principle of relativity and by the principle of prohibition of intemperance. Therefore I consider that social adequacy, flanked by these other principles, is a system of measures to which every legislator is bound; it is immaterial in which position he sets up regulations, whether it be as a proper legislator, as one who issues decrees, as a public administration in its area of responsibility, or within the framework of constitutional powers of boards and similar organisations.

At this stage, Mr. President, I have deviated somewhat from the plan which I submitted to you. I ask you to accept this as a token of the extraordinary stimuli which the papers and discussions have created.

Back to the judge, who is called upon to apply the law in cases of conflict! A judge does not have the same power of arbitration as those legislative authorities about which I have just talked. A judge must not assume the position of the relevant legislators and constitutional authorities, certainly not when the subject of smokers and the protection of non-smokers is discussed. Indeed,

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the relevant regulatory authorities will have utilised their jurisdiction to set up protective norms within given limits of the constitutional state much more, the longer the discussion continues. In every case, a judge must respect the regulatory prerogatives of the competent regulatory authorities. Purely hypothetically - and here I refer specifically to the contribution to the discussion by a research worker from Zurich which we have just heard - in the extreme case of actually evident health disorders through passive smoking - it is difficult for a lawyer to establish whether these exist -, if an absolute danger limit would be exceeded because a smoking ban had been ignored or not enforced, only then would a judge be allowed to grant, directly from Art. 2 Sect. 1 of the basic law, an individual claim for a smoking ban. From the talks given by Messrs Klosterkoetter and Schlipkoeter, I have concluded that we are then dealing with a hypothesis which practically never needs to be considered. In addition, a set of circumstances where a judge is able to grant a claim for a smoking ban to a non-smoker directly from Art. 2 of the basic law, will retreat further and further as time elapses, simply because it has been possible for the law-giving authorities to make use of their findings in respect of proclamation of rules during the course of the discussion. In fact, they have done so extensively.

Now the question of irritation of non-smokers by smokers! It may indeed be the reason which prompts those authorities with power to lay down standard rules, and the possessors of domestic authority in the area of public administration, to protect non-smokers generally or in an individual case, for example when negative effects on physical and mental efficiency caused by passive smoking are expected, particularly with insufficient ventilation. In this connection I quote a verdict of the Bavarian Administrative Court of 9. May 1975, Bav. Admin. Gazette 1976, pp. 30-. In that instance, this court has, in cases worthy of examination, ordered that non-smokers be protected, particularly - to state it once more - "from insufficient ventilation".

In fact I am under the same impression as the one expressed by a previous speaker, viz. that we are dealing with a problem of ventilation to the same extent as we are considering the problem of smoking.

Now allow me to draw an immediate legal conclusion from this! A lawyer must beware of generalisations. Perhaps he should differentiate - and I base this comment on several contributions to the discussion and on the paper by Mr. Schlipkoeter - even between urban and rural areas. On the other hand he cannot, when fixing general rules, orientate their contents towards the extreme sensitivity of a few affected individuals (I think this answers a question of a fellow lawyer with appropriate brevity).

In no case is a nuisance sufficient reason to qualify its perpetrator as an offender, again in agreement with Scholz in the article cited, i.e. Jus 1976. We also know the opposite view of Mr. Adolf Wischnath; he is of the opinion that even a slight

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irritation caused by smoke, even the exposure of a non-smoker to a smoker exceeds the limit of a trivial nuisance and is therefore a legal matter. I am pleased to take this opportunity to deal with his arguments within the time available. Wischnath bases his opinion on that concept of hygiene which is formulated in the Bavarian district regulations. Schmidt, who has been quoted several times already today, had already pointed out a decision of the Duesseldorf Provincial Court of Appeal which endorsed on the basis of the North-Rhine Westphalian hygiene regulations, a fine of 100 DM imposed on a butcher's apprentice; the latter had walked through a room containing several raw pork chops. Cigarette smoke is surely inappropriate for the production of smoked meat (General mirth). Being a Westphalian myself, I know that the quality of the well-known Westphalian ham is due to the smoke used; and being a farmer by birth, I know that sawdust from beech wood yields the best smoke.

However, the legally relevant answer to Mr. Wischnath's question as to whether there is a difference between the exposure to smoke of freshly slaughtered pork chops and the operative lung of a human is as follows, even if both circumstances are rightly assumed to be unhygienic:
There is a difference; the legally relevant difference is the fact that the exposure of chops to tobacco smoke was banned by a competent legislator, but the exposure of the public was prohibited in special cases only. In any case, it would hardly be possible to derive bans applicable to humans with the aid of conclusions analogous to district ordinances concerning foodstuffs from animals. Humans and animals may be similar in some respects, particularly humans and pigs. However, regarding the tertium comparationis, I am of the opinion that there is insufficient similarity to derive, from a food regulation, a smoking ban which applies to human beings.

Next, the Federal Emmission Act! It does indeed contain a definition of those terms which require clarification, as requested by the Secretary of State:
What constitutes a nuisance, a significant nuisance, a legally relevant nuisance, and the like? These are general legal terms which have in fact been considerably clarified already by jurisdiction and literature relating to environmental law. But - to put it briefly - it seems to me that an analogy between the smokestacks of the Ruhr industry and tobacco-smoking two-legged smokestacks is legally inadmissible. The entire environmental law, including its definition of nuisance, does not apply to nuisances caused directly by man.

Increased awareness of the environment in the last few years has certainly strongly stimulated the discussion of our problem. Allow me, however, to remind you of a relevant tradition, i.e. the tradition of freedom. Ever since the great French revolution of 1789, we have had, during a series of further revolutions and emancipations, a development of ever increasing

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freedom of the individual and of the freedom to satisfy one's desires; this included the sexual revolution in the late sixties. Analogous to the limits of growth, in smoking and anti-smoking debates we are now also experiencing an urge to curb our desires, namely the desire to smoke, which once was thought to be harmless. Thus the pendulum of public opinion, which is by no means a majority opinion, swings into the opposite direction; it appears to me that this occurs in very short time intervals. Standards should, however, endure for longer times.

May I now attempt to find an answer to the contribution of the legal colleague, who spoke of the temptation of a former smoker subjected to renewed cravings after he had just been converted to a non-smoker! Let me compare such a probationary non-smoker to a man who has sworn to be forever faithful to his wife. What would have to happen to deliver him from any temptation to be unfaithful? I would not like, Mr. President, to extend this to possible disorders (Applause). But perhaps you will allow me to make two remarks! Life would be poorer without temptations, and temptation affords the opportunity to prove one's virtue.

The topic is, in my opinion, not a legal case. In this whole area, the reactions of jurisdiction and legislation are comparatively vague. Do I have to quote examples? Are residues of vegetable poisons - to quote just this example - in fruit consumed by us, less dangerous than the smoke residue left by others in our environment? Like many other things, smoking may, in certain circumstances, cause irritations in the environment; however, another dimension is dominant, i.e. interpersonal relationship. The latter can be legally standardised in a limited way only, since the whole problem is unfortunately charged with emotion and excitement. I have expressed this view already, and it is available to you in print (NJW 1975, pp.2237-). My view is confirmed in the latest amendment of the ordinance on the operation of motorised services in passenger traffic, where a smoking ban within a taxi is now replaced by an understanding between taxi driver and customer (BGBl. I, 1977, p.598). A report on this latest amendment appeared in the "Frankfurter Allgemeine Zeitung" on 14.3.1977. It is reported that because of the former regulation "there was total confusion as to whether smoking was still permitted in a taxi, and under what conditions".

This confusion is in conflict with the elementary legal principles of clarity and positiveness. These are the reasons why a lawyer should remember that, within the system of our social standards which are indeed not mere legal standards, considerateness plays a meaningful and essential role; it cannot easily be replaced by legal norms, as shown by the abovementioned legal ruling. Obviously, according to current insight, it is just as important as the basic and supplementary legislation.

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DISCUSSION

Paper by Kaiser

H. Valentin:

Many thanks to our colleague Mr. Kaiser. Before we begin the discussion, may I ask - without intending to stifle the discussion - that we stop at 6p.m. sharp, because the reception commences at 7pm. Who would like to start the discussion?

A. Wischnath:

Ladies and gentlemen! The most agreeable and amicable talk by Professor Kaiser proves that non-smoker protection is not necessarily a serious matter always and may certainly be spiced with humour and satire. Protection may be effected in various ways, and those retired people who have chosen it as a hobby will live healthily, not only by not smoking but also through the mental agility brought about by it. I do not intend to consider questions of health any further, but may I relate one hilarious circumstance. Mr. Klosterkoetter, I am greatly indebted to you for your publications which find their way to the press. A short time ago, I had to look into the case of an office worker in F., who had been subjected to terrible strain through his smoking superior.

I have taken the liberty to write a letter to the editor similar to yours. The office worker, having read this letter in the press, subsequently writes a letter of thanks, in which he states that his superior has now stopped smoking. He concludes as follows:
"First of all, I am most grateful for your help. I cannot complain at the moment even though we have had serious arguments. Thanks to your advice, I was able to put my point of view firmly".

That, in my opinion, is the serious matter: We want to establish a basis from which we are able to put our views firmly.

I would like to raise three points. Firstly, Mr. President, the agenda. From the foregoing discussion I have the impression that a great gap exists somewhere. Professor Hanau has already given a hint in this respect. We call our conference "Passive Smoking at the Workplace"; but as yet there are no decisions by industrial courts. We only have the decisions quoted by Mr. Kaiser. I am in a position to report on 3 industrial court decisions, in Bonn, Bremen and Augsburg. If it suits everybody, I could modify my talk for tomorrow morning accordingly and add the following topic: Weight and questions of evidence in industrial

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and civil passive smoking trials. Does everybody agree? - I have the manuscript with me; I could also make it available for publication.

Secondly, I would like to say a few words to supplement the remarks of Professor Kaiser. Mr. Kaiser has quoted a statement from a decision of the Bavarian Administrative Court, according to which the petitioner has, by producing relevant data, substantiated that negative effects on physical and mental efficiency, and even genuine health disorders may occur through passive smoking, particularly with insufficient ventilation. This is not the main point of the decision, but an additional argument. The main point is contained in the preceding sentence:

> When the opposer
> - i.e. an examining authority -
> at best grants the smokers amongst the examinees the physical advantage of nicotine consumption in the examination room during the compilation of their examination answers, he is then obliged to compensate for the disadvantages thus imposed on the non-smokers amongst the examinees, even if the former be purely physical in nature.

Thus the physical disadvantage of the non-smoker and the physical advantage of the smoker are opposed to each other. This implies that the conditions of the examination are not the same or, translated to our topic: Non-parity of working conditions. This has been the main decision in the above case.

Again in the Slesvig Administrative Courts the question is not one of health hazards; instead, the point is that the defendant, i.e. the dentistry board, forces people to suffer an intolerable nuisance by not imposing a smoking ban during educational meetings. The tenor of this decision - for which we have fought in the exchange of communications - is to point out that the employer, i.e. the President of the dentistry board in this case, exerts coercion in this instance. The question asked by the dentist is not: How do I protect myself from the hazards of passive smoking?, but rather: How is it possible that the President of the dentistry board is able to force me to inhale something which is different from that provided by God or natural surroundings? These are the questions under discussion.

In order the answer the question of legal relevance of nuisances raised in this discussion, I have taken the liberty to project a condensed model answer onto the blackboard during recess.

Something I have not yet mentioned at all: In §5 of the workplace regulations, it is stipulated that "sufficient healthy air for breathing" must be available at the workplace. Thus we find the term "air for breathing" in the legal text. If we now reflect on the significance of its definition - I have not found one yet - then I remind you that §184 of the constitutional

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law for law courts stipulates that the legal language is Germam. Hence we should legislate in the German language, according to rules of the German language. "Beneficial" is opposed by "detrimental", which implies harmful or unhealthy. Next we have the two intermediate terms "bearable" and "agreeable". Bearable is defined as not unhealthy, but not yet unobjectionable on health grounds, and "agreeable" is defined as beneficial, i.e. unobjectionable on health grounds. And "beneficial" means useful, i.e. useful for an unfolding or development. All this you may check in the Duden Dictionary of Word Meanings. "Sufficient" does not have a derogative meaning, nor does it mean "nicer", but instead it means "enough". The proper translation should thus be "enough breathing air useful for health purposes". "Enough" cannot be conjugated, but simply means enough always; I cannot eat more than enough. On this basis the term assumes another meaning.

A health regulation in the foodstuff sector is as you have correctly recognised, a joke. But seen in isolation, the boundaries are defined. Hence in the three industrial court trials, the judges were quite actively for the case right from the initial stages of the hearing. The applications - if I may just mention this in conclusion! - are indeed not concerned with protection; instead, a claim of compliance is positively asserted to make available to the claimant air which is unobjectionable on health grounds at the work place which, in particular should be free of tobacco smoke. This is the main claim. And if the judge then asks: How do you envisage its implementation? Then the claimant will reply: That it is the concern of the employer, if necessary a smoking ban must be proclaimed. Then a supplementary claim is made that, to facilitate the implementation of the claim of compliance, a corresponding smoking ban be proclaimed.

H. Valentin:

Many thanks. May we have some further comments? Who else would like to speak on the legal aspect? - Yes Sir!

E. Meyn:

Professor Kaiser has described the limits which exist even for the legislator; these limits are to be imposed by social adequacy, the principal of relativity and the prohibition of excesses, and the Secretary of State, Mr. Vorndran, has outlined (the position of) the Bavarian government and reported on it. Now I would be interested to learn whether Professor Kaiser considers that these limits were observed in the above regulation.

H. - J. Woitowitz:

I would like to direct a question to the lawyers. As far as I

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have understood social politics in my profession of occupational and social medicine, one is frequently faced with protecting the socially weak. Regarding irritation by passive smoking at the work place, the question arises: Is there a counterpart in the legal sector for the person of frail health, i.e. the person whose mucous membranes are very easily irritated?

W. Klosterkoetter:

Both Mr. Kaiser and Mr. Wischnath have talked about the health regulations of the federal States. I am very happy that Mr. Wischnath has stated in the presence of witnesses that this was a joke. The reason is that on one occasion, I was rather violently accused in an article of being unaware, as a health expert, of the health regulations in my State, which allow people to be exposed to smoke, whilst it is prohibited to expose pork ham etc. to smoke in a coolroom.

One further point to enable you to gain a proper understanding of the subject: Any type of killed pork is highly susceptible to pollution; e.g. it easily absorbs odorous substances and the dead tissue has lost all its self-cleaning capacity. When humans are subjected to smoke or come in contact with other substances from their environment - and indeed, this happens day after day - then they clean themselves, perhaps they even take a bath several times per week; this removes dirt and the smell of tobacco smoke, too. Human lungs and bronchi also possess excellent cleaning mechanisms. A live pig wallows in dirt and is subsequently eaten by us. If raw or cooked pork ham is wrapped up in underpants that a man has worn for two days, then this is a criminal act, because these underpants contain millions and billions of bacteria which infect the ham to a high degree. A man could well continue to clothe his live buttocks with these underpants for another day; his skin is able to withstand this contact with bacteria. This, then, is the difference between the essential conditions of a health regulation as regards killed meat and everyday health of human beings.

C.H. Ule:

Mr. Wischnath has accused Professor Kaiser of not really speaking about the conference topic "Passive Smoking at the Workplace". Well, partly this is a point which will surely have to be brought up tomorrow in the problem of passive smoking in public administration. However, this was indeed not the task which Mr. Kaiser was asked to tackle; he was to present the "constitutional laws for action and protection with conflicting interests on the same level". With regard to the basic attitude to Art. 2 Sect. 1 and Art. 2 Sect. 2 of the basic law, I would be in complete agreement with Mr. Kaiser. He has also raised the question to what extent e.g. the categories of the Emmission Protection Act can be brought into play here, and he has correctly stated that we are here dealing with emmissions which do not emanate from some

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industrial plant but rather, if you like, from man.

I have followed the whole debate about passive smoke from the beginning, because the first essay which Mr. Wischnath wanted to publish was sent to me in my capacity as editor of the "Deutsches Verwaltungsblatt". I was then under the impression, still quite unaffected by medical knowledge that has since been gained, that the problem was somewhat overemphasized and particularly, that it was raised to the level of constitutional law where it would surely occupy a most questionable position. The category of "significant nuisance" which today has repeatedly played a role is, after all, a category of police law. Furthermore, ladies and gentlemen, you might picture the situation where a police authority may ban smoking for reasons other than security, i.e. reasons attributable to fire hazards from smoking; smoking bans in theatres, concert halls and similar rooms. We recall the 18th century when it was forbidden to smoke in the streets for public health reasons. This occurred prior to the introduction of restricted police intervention. Nowadays there surely is provision, in police law, for hazards to public order or public safety; on the other hand, public safety is defined as something which concerns public health. And this leads us once more to the gist of the medical problem: Does passive smoking in fact lead to a health hazard? I believe that I have understood Mr. Kaiser correctly in stating his view that as long as this is not the case, it is simply not possible to intervene here. In my opinion this would also impose bars on the - as Mr. Kaiser has expressed - legislators, be they the parties in an industrial agreement or perhaps the authors of a general administrative regulation in the sector of public administration. Even they can hardly prohibit smoking merely to comply with some idealistic ideas of improving the world, if no health hazard exists; because this would represent a considerable violation of Art. 2 Sect. 1 - the right of freedom of action. In this respect, I am thus in complete agreement with the basic tendency of your statements.

H. Valentin:

Many thanks! Does anyone else wish to speak? - Mr. Kaiser, may I ask you to say a few concluding words.

J.H. Kaiser:

Mr. Wischnath has enquired how to take a physical disadvantage into account when examining some situation; unlike him, I would not conclude quite as readily that ideas concerning the stress of an examination can be applied to the normal workplace situation. A judge must in each individual case, consider individual situations to find out whether this is the case. I agree that an examination may represent such a situation in the sense that according to the principle of equality, the physical advantage of smoking must also be taken into account. The Bavarian

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Administrative Law Court has based its abovementioned decision of 9 March 1975 on the fact that smoking may create physical advantages. According to our concept of individual freedom, the legislator or whoever makes the ruling, must establish his limits in recognition of this circumstance. Compared to the normal workplace situation, the circumstances of an examination might perhaps be somewhat different after all. I would like to comment briefly on Mr. Wischnath's interpretation of the concept of health. These word interpretations, which he has elevated to an art, if not to real artistry, are naturally just another interpretation of the law. As every lawyer knows, the intentions of the legislator, the logical context, the system which includes the whole concept are more important. I would have grave reservations about adopting his interpretations.

Now to the question of Mr. Meyn from Bonn regarding my views on the decision of the Bavarian State government. As you know, the answer to such a question - as to whether such a regulation is in agreement with the law and the constitution - could best be established in some legal trial, certainly only after a thorough analysis; for this reason, an off-the-cuff answer is not possible.

Finally, the question arose as to whether problems of health are of secondary importance. Perhaps, Mr. President, the current medical debate has made them second-rate; this is not always so in court decisions. Thus the Bavarian Administrative Law court, referring to the monograph by F. Schmidt "Tobacco smoking as the principal air pollutant in enclosed areas...." wrongly considers it "established that ... real health disorders are caused" (Bavarian Administrative Gazette 1976 p. 31). We have to thank our medical contributors for establishing firmly, in this argument, that health disorders by passive smoking are impossible in principle and have been shown to be probable in extreme cases only.

H. Valentin:

Thank you for these concluding words. This brings us to the end of our afternoon. I hope that your interest has been aroused and that tomorrow's debate has been stimulated.

I thank you very much and conclude today's proceedings.

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Friday, 1 April 1977

Chairman: J.H. Kaiser, Freiburg

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PASSIVE SMOKING IN THE LIGHT OF CURRENT JURISDICTION

A. Wischnath:

Before considering the actual topic, I would like to comment on two points which arose yesterday.

The first of these relates to my contribution to the discussion on the paper of Prof. Dr. Kaiser, where I quoted from the decision of the Bavarian Administrative Law Court of 9.5.1975, the opinion of this court that smoking during a written examination gives a physical advantage to the smokers amongst the examinees, whilst it represents a physical disadvantage to the non-smokers; hence this court accepted a violation of the principle of equality, which had to be reinstated by means of a smoking ban. It is arguable whether this applies only to the stress situation in an examination, and whether this principle can also be applied to labour relationships in cases where the permission to smoke creates unequal working conditions for non-smokers. Yesterday in this exalted company I definitely was subjected to a physical-psychic disadvantage due to the smoking of other participants; I was unable to breathe freely and later, when I stepped up to the microphone after a three-hour discussion, I must have created a vague impression; because even after a few sentences, my voice gave out and I had to exert considerable effort to overcome this disability.

Again this morning I am faced with an unchanged situation here at the rostrum; not only do I have to be present under unequal conditions, I must also address you with increased requirements of breathing air.

The second point in my preamble concerns the whimsical address of the Secretary of State during last night's reception, where he endeavoured to distribute the Pro and Contra fairly; in doing so, in a sense he made Goethe a patron saint of non-smokers by quoting his well-known rhyme about smoking.

Again I would like to use old Mr. Goethe; however, I would view the Pro and Contra somewhat differently, insofar as the smoker certainly knows what he wants (Pro); but the non-smoker does not always know what he is against (Contra). The non-smoker is not anti-human, but somebody who desires something positive, and generally when I have to represent somebody in my capacity as a lawyer, I do not ask: "What are you against?" but: "What do you want, what are you in favour of, what do you want me to do for you?". In this sense, I now quote Goethe:

> There are two blessings in breathing:
> To take in air, to blow it out;
> some things are oppressive, some refreshing;
> so wonderfully different is life.
> Thank God when he presses you,
> and thank him when he lets you go again.

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Thus Goethe was anti - as well as pro - human, a believer in the right to fresh, good air to breathe. His poem which I just recited is therefore often known as the hymn of freedom to breathe; in our scientific, prosaic language one might also say that Goethe has here advocated natural breathing air as an elixir of life.

And now back to my actual topic "Passive Smoking In The Light of Jurisdiction"; the complexity of the whole problem makes this such a broad topic that you will forgive me of I now deal with only two important basic questions. Other statements that could be made about passive smoking trials have been summarised in a memorandum presented to the chair of the academy; it comprises 37 pages and would, in any case, be outside the framework of this conference.

Hence I will now deal only with the problem of coercion to suffer passive smoking, and with the problem of utilizing communal breathing air for special purposes.

1. In the medical debate on passive smoking, representatives of both schools of thought commit the common mistake of not recognising the coercive nature of the passive smoking process.

   Those who agree that there is a health hazard due to passive smoking oppose the coercive nature of passive smoking with arguments which are inappropriate here, because they do not oppose coercion as such, but only its consequences.

   Others, who do not recognise health risks from passive smoking accept coercion to passive smoking as something God-given or as a natural phenomenon, without explaining how this coercion is justified as something which is, in their opinion, absolutely unavoidable.

   Both opposing groups commit the common mistake of quoting the revolutionary decision of the Administrative Court in Slesvig of 20.9.1974 (dentist episode), Nene Juristische Wochenschrift, 1975, 275 very frequently sometimes full of praise, sometimes with some criticism, but overlook its basic problem; because the wording in this decision - I quote: "Forces them by proclaiming a smoking ban" - acknowledges the coercive nature of passive smoking and the outstandingly progressive element of this court decision.

   May I also add that it is precisely this aspect i.e. that passive smoking is an application of coercion, which has played a far more significant role in the documentation of this Slesvig trial than the health argumentation, which played only a secondary role and which led to practically no differences of opinion. The second legal aspect which was then dealt with in the Slesvig trial, was the question which

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I still have to consider, namely common usage and special utilisation of breathing air; the court did not examine this for reasons which are in print, but its importance would place this question ahead of the health argument.

2. The application of coercion by abstaining is no foreign concept to lawyers. Both abstinence and positive action are a basic form of that action which may be the cause of a specific effect.

The causality of abstinence is always given when the non-executed action or step must be imagined, in order to establish that the effect or damage would then not have eventuated. In passive smoking, this does not always immediately imply a smoking ban, but other steps are also sufficient to shield the consciously breathing non-smoker from this coercion.

3. In the conflict of interests about passive smoking the principle applies that the person who practices basic law in an approved manner is not an offender but rather, it is the person who objects to it. In the medical debate on passive smoking the representatives of both sides make another common error of completely neglecting any "work on factual findings" by pretending that only the smoker is the active person and the non-smoker is just a passive sufferer. In reality however, the non-smoker acts first, and more vigorously than the smoker. Because even before the smoker is able to light his cigarette, the non-smoker is already busy exercising his basic right of freedom to breathe, and also tries to develop it, in a medically appropriate way, during work time and at the workplace for reasons of increased efficiency.

Hence it is the smoker who objects to the basic right of the non-smoker by forcing him to inhale something which is different from air which is unobjectionable as regards health and thus interferes with the free development of his right to breathe. Thus the question arises by what right that smoker, who himself suffers from a breathing disorder, can ask the non-smoker to similarly make do with a defective lung? The same question arises when an invalid wheelchair case asks that his healthy neighbour also gives up his ability to move and makes do with a wheelchair.

4. Now since the employer, according to the Civil Code, is forced to protect the employee at the workplace to that extent which is determined by the nature of the work, he must also make available to the employee breathing air which is unobjectionable as regards health - according to §5 of the workplace regulation; this air must in fact be positively "wholesome", i.e. not merely harmless to health; because smoking is not part of the "nature of service".

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I now remind you of the diagram which was projected onto the screen last night.

QUALITY OF BREATHING AIR	=	QUALITY OF LIFE

A) Polluted Air (hard to breathe)

a) detrimental = harmful = unhealthy
b) bearable = MAC-values = not unobjectionable on health grounds

B) ——————— Nuisance threshold ———————

C) Clean Air (easy to breathe)

c) acceptable = beneficial = unobjectionable on health grounds
d) wholesome = §5 wkplce. reg^{n}. = health - promoting (§184 GVG)

D) Passive smoke = not wholesome = more than a trivial nuisance (unwholesome)

Thus the non-smoker is not interested in any defence claims directed against his smoking colleague, but he submits a request of compliance to the employer; the former is not even the concern of the worker's council, because concrete legal claims in an individual case must never, according to §76 Sect. 7 of the worker's constitutional law, be made outside of legal channels by internal rulings; and furthermore, because they enjoy an absolute minority protection in accordance with Art. 19 Sect. 2 in the basic law.

The real enforcer of passive smoking is therefore not the smoking workmate, but the employer.

By allowing smoking in the same room in front of other employees, the employer forces the non-smoker(s) to accept an interference to their right of unimpeded freedom of breathing by not imposing a smoking ban. Thus, by not taking this step the employer exercises a wilful domination over the lungs of his employees whom he is supposed to protect.

5. The conflict of interests with passive smoking between smoker and non-smoker thus does not take place on the same level, but it is a battle from a low to a high level, a claim of the person subjected to instructions and obedience against his employer when the latter does not, or only unsatisfactorily, fulfil his duties arising from work regulations.

In this battle against coercion to passive smoking, the freedom of executing breathing functions in a healthy non-smoker who is conscious of the air he breathes, is certainly

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protected. This is a very simple and straightforward answer to the problem of onus of proof in a passive smoker case involving industrial law. Because the complaining non-smoker in such a case assumes the position of a person whose freedom to breathe is materially impeded, it is up to the employer to show that the non-smoker present in the same room is obliged to suffer passive smoking, and that this obligation is unavoidable and more important than the innate and existing obligation to develop the non-smoker's own breathing.

Before we can move on to other medical possibilities of establishing proof, the evidence that the obligation to passive smoking is unavoidable, but that the obligation to be actively breathing is not essential, must have been presented in a medically definite way. As far as one can see, such scientific opinions based on hygienic air and breathing do, however, not yet exist; however, one should insist on them just on the basis of §291 of the Civil Procedure Code. There it is stated that accomplished facts revealed in a court of law do not require proof. In applying this legal rule the courts, particularly the Administrative Court of Slesvig, have quite rightly not taken sides in the medical debate on passive smoking, and have only stated that the obligation to suffer passive smoking is not a trivial nuisance.

Violation of freedom is always more than a trivial nuisance; it does not matter whether or not health disorders are caused.

6. In the medical debate on passive smoking, both sides indulge in shadow boxing which merely promotes an apprehensiveness of health in the non-smoker on the one side, and a defiant reaction in the smoker on the other and is thus of no use to anybody in the final analysis. Practical experience in passive smoking trials has shown that smokers are quite sympathetic to the interests of non-smokers, and are often willing to accept a smoking ban for the sake of these interests, provided - well, provided that this ban is uniformly applied in the light of the principle of equality; again, this gives cause to recall the decision of the Bavarian Administrative Law Court and its statement on unequal examination or working conditions, - or when a balance is established by allowing breaks for smoking outside the common work area.

Here and today we should therefore attempt to establish agreement; to firstly consider a common topic for investigation, and to elevate the former to the dominating focal point of all further considerations, i.e. the <u>common utilisation of natural breathing air</u> to which all citizens have equal rights.

7. In fact, air is a public matter which is nobody's private property but, at the same time, used by everybody. Everybody knows this, and legislators have taken this circumstance into account already in many different regulations, e.g.

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in air traffic legislation and in regulations on protection from emmission and noise control.

According to the scientifically developed concept, common usage is the public right granted to everybody, of being able to utilise a public matter without special permit or official decree, in accordance with the natural purpose for which it is intended. Hence common usage is available to all people on principle, it cannot be denied to certain groups of people except when this usage, in an individual case, goes beyond the natural intended purpose, or beyond some decree. In such a case, this utilisation which now goes beyond common usage, requires a special permit, permission, approval or licence, in the first instance from that person whose common utilisation is upset or otherwise affected by this special use.

Now it cannot be denied that the vital importance of breathing air, which becomes more and more scarce, similar to drinking water, requires that this commodity be economically managed. Hence the right of free breathing within the framework of common usage is determined more strongly by preventive considerations than, say, road and traffic laws. Since any method of consumption or usage which causes a substance to be altered, may lead to a restriction of common usage by others who, say, intend to breathe in the same space, it cannot be left to the arbitrary discretion of anybody. The increased special usage of a natural product in the form of breathing air by a smoker, will then no longer form part of common usage; on the other hand, it cannot altogether be rendered impossible, but must be attuned to both the interests of the public and the aware non-smoker as normal beneficiary within the framework of common usage. Hence the smoker cannot, by producing blue smoke, simply deprive the non-smoker of breathing air or even restrict its availability, but should have the express permission of the non-smoker before doing so. Thus he must first ask the non-smoker if it is permitted to smoke in his presence before lighting a pipe, cigar or cigarette.

It is thus in agreement with a long established, if not inbred or inborn feeling of a smoker for the necessity of prevention in respect of the non-smoker, that he usually asks, even without a special legal regulation: "Do you mind if I smoke?"

But the non-smoker need not even feel impeded in his rights by such a question, since he can indeed use more polite expressions than an abrupt "No" to ward off the inhalation of unhealthy air mixed with tobacco smoke, such as: "Please, not now and not here". Or during a business meeting: "Please, perhaps later, otherwise I cannot concentrate". Or, in less polite circumstances, when the smoker continually insists: "Oh please don't, I cannot think when you stink", or when the chips are really down: "Oh no, it looks as if you want to

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put me out of action with your blue smoke and then knock me down". Or in the lawyer's practice, when the next client is called from the waiting room: "Oh, do finish smoking first, in the meantime I'll ask Mr. X in". Before Mr. X comprehends that it is now his turn, the smoker has extinguished his cigarette and appears in the door of the consultation room.

Be this as it may, the smoker has first chance to ask for permission to smoke. To preach permission to smoke without the proviso for approval by the non-smoker(s) present would mean nothing else but a denial, with all methods of advertising or science, of the principle of equality in common usage (in the form of mutual compatability); it would also propagate the suppression of the rights of all normal consumers of air.

In fact, being free means to be able to breathe freely, and a nation where it is possible that its citizens are no longer allowed to breathe freely, is itself guilty of the gravest violation of the rights of precisely these citizens. Thank you.

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THE PASSIVE SMOKING PROBLEM IN PUBLIC ADMINISTRATION

D. Merten

I

Compared to the private sector, passive smoking in public administration generates specific problems, because the public administration cannot act with "private discretion".1) It is bound to the rights of the public and employees, to the rights of smokers and non-smokers; it must exercise its authority appropriately and is not allowed to act impulsively. The proprietor of a restaurant may prohibit smoking, and whoever wants to consume his food under the influence of passive smoking, must go to another restaurant. If the fire brigade agrees, picture theatres for smokers may be operated, and whoever wants to appreciate film art in the company of non-smokers only, must go to another picture theatre. In contrast, legal and basic rights conflicts in the area of public administration must be solved tactfully; opposing interests must be balanced.

The term public administration must be understood in its wider meaning, irrespective of whether it operates in terms of public or private law. One would otherwise have to differentiate between a confrontation with a smoker in a bus of the Federal Railways or of the Federal Mail, and only lawyers appreciate this small difference.

My topic is restricted to an examination of irritations or hazards for which smokers are responsible. We are not dealing with smoking bans imposed by fire authorities or educators; the latter are based on the law relating to protection of adolescents in public.2) Furthermore, we shall not examine smoking bans imposed e.g. on school teachers to prevent imitation, or those which have been imposed owing to the dignity of the locality; at the same time, a law court is not a proper place for "smoking louts" to recite Goethe.

It is not possible to balance the interests of smokers and non-smokers without any restrictions. In public administration it is not always possible to separate smokers and non-smokers, one cannot allot a room to each individual or group together smokers and non-smokers, although attempts are made to achieve this in service instructions. In an era of economic stagnation it would also be Utopian indeed to insist on technical devices, particularly ventilating plants, to ensure that smokers do not irritate non-smokers.

Now yesterday someone asked, quite rightly, whether the conflict between smokers and non-smokers must, in fact, be fought on the constitutional level. Indeed it seems to be a sign of the times to elevate all problems to a constitutional level and, wherever possible to invoke basic rights also. If a suitable basic right does not exist, it is structured into the

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constitution in order to subsequently interpret it out of the latter. An example of this is the so-called basic right of freedom to breathe, or to an environment worthy of humans. One has forgotten that it is possible to take a walk without the basic law under one's arm, at least during some time of day.

In a more radical way than yesterday, not only do I question that the problem is elevated to a constitutional level, but also whether it is really the job of a legislator to establish rules in this respect. Should one not leave this to social conventions, good behaviour or tact? Is it not possible for society to be considerate to an acutely or chronically ill, allergic or asthmatic person without being instructed by law to do so? Is it a national weakness of Germans or a sign of the times that a legislator is requested even for trivial cases? In turn, the former is only too pleased to regulate and be excessively bureaucratic. Cannot one desist from something without being legally forced to do so? Cannot one ask for something without staking a legal or preferably basic rights claim? The question put by Mr. Wischnath whether a smoker should ask for permission, as one asks whether one can take one's coat off in public, belongs to this category.

However, if legal rules are sought and courts of law are appealed to, the lawyer cannot refuse. He will then be unable to bypass constitutional law, because the constitution influences simple law, and because administrative law is "concrete constitutional law", as formulated by Fritz Werner.3)

II

The starting point of any constitutional rights investigation is Art. 2 Sect. 2 of the basic law, the basic right of life and physical safety. Compared with other relevant basic rights regulations it is a special regulation; however, this is not always properly recognised by administrative courts.4) This basic law is inapplicable to the relationship between citizens, it invokes no immediate third party effect - facts which are now known everywhere, except perhaps not always in the Federal Industrial Court. In contrast to private law, this knowledge is of no additional use in the public administration sector, because here we are dealing with the State - citizen relationship; e.g. when the State authority does not allow an employee or the public to smoke in public buildings, or when a non-smoking employee requests his employer to provide protection from irritations caused by smokers.

In accordance with Art. 2 Sect. 2 of the basic law, one has to distinguish between two situations: Is the State required to lay down standards, or is it considered beyond its powers to establish rules regarding smoking and non-smoking. Here we have a connection with the basic rights/dogmatic problem, i.e. can

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basic rights of life and physical safety be used to cause the State to act.

Firstly, the basic rights only require the State to desist from interfering with legal assets protected by basic rights. With the assets of life and physical safety which are essential to the individual however, the State's duty of preservation also includes countering illegal excesses of third parties.5) For example, in the so-called abortion decision6) the Federal Constitutional Court has stressed that the right to life "as a vital basis of human dignity and a prerequisite for all other basic rights" makes it imperative for the State "to put itself before this life as a protector and benefactor, i.e. above all, to protect it from illegal interference by other parties"; this court includes the method of punitive sanctions in this category.

Subjective rights of the citizen can only be derived from this objective guardian duty of the State with extreme caution. In fact, the basic rights of protection do in principle not imply that the citizen has any right to insist on their execution. However, if Art. 2 Sect. 2, in connection with the social - State - principle, promises an individual a positive right, beyond the right of protection, to request minimum possessions essential to life, then it follows that an individual can ask the State to provide a minimum level of protection from illegal excesses of others.7)

The State's obligation to protect the citizen from the latter, and a corresponding right of the individual to ask the State to act, always presuppose a violation of, or hazard to, legal assets8), however. The State may be asked to help only if the smoking of third parties endangers the physical safety of the passive smoker.

III

It is not obvious whether health is endangered by smoking or passive smoking. A lawyer cannot decide this question with his knowledge alone. Hence it is risky for administrative courts to simply submit that smoking is a health hazard. Similarly, those administrative regulations invite criticism, which request special considerations in the interests of non-smokers "with reference to the health hazards of smoking and particularly passive smoking".9) The phrase "particularly passive smoking" wrongly creates the impression that passive smoking is a particularly dangerous or intensive method of smoking. Administrative instructions to the effect that fifty thousand humans die annually from direct or indirect consequences of cigarette smoking, are also too sweeping and undifferentiated.10) Finally, the argument of the Federal Government11) which by means of a "conclusion by analogy" agrees that the passive smoker is in danger, whilst admitting that "so far, only very unreliable data on the real dangers to the non-smoker from 'passive smoking' are available", is not very convincing logically. The question whether the health

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of a passive smoker is endangered cannot be answered by referring to health disorders of active smokers. The decisive point - for a legal assessment, too - is the question whether or not the passive smoker is threatened be health hazards and not, whether the active smoker is exposed to them. The latter question would be relevant only if the smoker himself was not allowed to consume tobacco for the sake of his own physical safety. One must not mix up all the facts and problems and, once confusion has been created, draw conclusions which were desired in the first place.

IV

The medical problem as to whether passive smoking is normally a health hazard, should be answered rationally, free from speculations and emotions and wherever possible, on the basis of facts that can be rechecked. If one surveys the medical literature then the lawyer must do so with the very common belief that the harmful substances which are normally inhaled during passive smoking occur far less frequently than those inhaled by the active smoker, and that their concentration lies far below the threshold of undesirable side effects. In view of yesterday's discussions, it is no longer necessary to deal with these problems.

If it is not possible to demonstrate that sufficient health hazards from passive smoking exist, then the legislator is not obliged to act in the interests of physical safety for passive smokers. In that case, there is not even a legislative right to proclaim regulations for the protection of passive smokers from health hazards. In fact, if a legislator prohibits smoking, then he simultaneously interferes with the basic right of the smoker of free development of personality (Art. 2 Sect. 1 of the basic law). Much less pretentiously, this may also be described as "general freedom of action" or as the right of everybody to do - within certain limits - or not do whatever he likes.12)

A secondary example of this freedom is smoking, and any State-imposed smoking ban represents a restriction of freedom permissible only in accordance with restrictive possibilities of the basic law. In contrast to Mr. Kaiser, I put more stress on the basic rights - domain of freedom, and not on the social adequacy of smoking, because this concept sounds somewhat suspicious to me from the aspect of a constitutional State.

On the other hand, the cited Art. 2 Sect. 1 of the basic law also protects the right of non-smoking; similarly it is possible to derive from all those basic rights which establish a positive action, a negative right not to undertake said protected actions. The citizen is entitled to join a trade union, but he may also not join it; he can state his opinion, but is not forced to do so; he may pray, but nobody insists on it. However, these "negative freedoms" must not be misunderstood, and one must not draw conclusions from them which are too sweeping.

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The right not to smoke does not imply a claim that nobody else may smoke; from the right not to pray it does not follow that others must not pray. This would represent a misinterpretation of the basic law which has in fact led to an "intolerance of negation"[13] it has also extended, in an unacceptable fashion, the basic rights sector beyond the boundary prescribed by the constitution to the detriment of the rights of other citizens. Mr. Wischnath has said elsewhere that a nation where the citizens may no longer exercise their personal freedom through breathing freely would lose the right to call itself a free nation. This statement is thus a hollow one and leaves room for arbitrary argumentation.

V

Even if the passive smoker is not exposed to health hazards, he is still subjected to irritations which could cause the State to intervene. But one must realise that when many people live close together, irritations can never be excluded and that the State cannot stop them as in the case of irritation from noise.

It is not only because of the smokers, but also - at least in the industrialised nations - due to exhaust gases that we are today no longer able to inhale the "living breath of God"[14] cited by Mr. Wischnath. If we were to change this, we must establish our own Morgenthau-Plan and revert to a nation of farmers. Thus even with passive smoking the question is not always how any irritations by smoking can be warded off in all instances. In fact, smoking bans only become important when smoking creates significant nuisances which prevent a productive human coexistence. These "significant nuisances" must be quantified and measured objectively. The subjective sensitivity of an excessively sensitive person is not important here. Prevailing circumstances vary with room size, ventilation arrangements, number of cigarettes smoked per unit time. Whilst it is often possible to "cut the air with a knife" in a small room, only a trivial irritation is generated when a single smoker takes a few puffs in a large room. Hence irritation by smoke does not always equate with irritation by smoke irrespective of prevailing conditions. The legislator may prohibit smoking only when significant and intolerable nuisances prevail, only when it is essential for "public order" in the sense of police law, i.e. for a productive human coexistence. For this purpose a restriction of the general freedom of action of the smoker is permissible, too. In particular, a significant nuisance exists if the available air volume is too small and ventilation is difficult. Hence there is no reason to query why legislators have banned smoking by operators during the transport of passengers in buses travelling both regular and irregular routes. However, smoking is permitted in taxis and hire cars, provided the passengers agree.[15] This regulation shows that a smoking ban to protect non-smokers must not be total and all embracing, and certainly must not be proclaimed when the former are not irritated or do

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not feel irritated.

VI

Smoking bans based on formal laws or legal regulations which in turn are based on formal lawful authority, are relatively rare. More frequently, public servants or even the public are forbidden to smoke in certain public areas through administrative regulations, edicts or special rules. Here we are dealing with special law which is usually proclaimed without authority by a formal parliamentary law. Unlike the regulations of some organisations which are neutral as regards freedom, an official smoking ban does restrict the freedom of the individual. However, any intervention by the State in the area of civil liberty or private property requires a parliamentary/legal basis.

The question of whether the provisions of parliamentary law also apply to the so-called "circumstances requiring special powers" has once again become problematical and acute in the light of very recent judgements, particularly that of the Federal Constitutional Court16). Here we are dealing with "special onerous circumstances" (Ule) where the individual faces the State e.g. as public servant, pupil, soldier, prisoner, but also as a user of public utilities. Whilst it has been the usual procedure up until now, to allow that exceptions from provisions of formal law be made in these areas, the Federal Constitutional Court now insists on a formal law or a formal legal authorisation in such cases, i.e. where the executive takes steps which restrict freedom. It is not possible to discuss objections to, and discrepancies arising from, this thesis. Even when one concurs with this new way of thinking, the requirement of a parliamentary/legal basis cannot be a total one, and special powers of the executive cannot be excluded. The appropriate solution will then differentiate rather than cover all cases. Hence we must remember to distinguish, with Ule, in other cases between a "basic relationship" and a "working relationship"17), to separate important and trivial matters18) and to take the resistence of individual basic rights against restrictions into account.19) Here it is significant that according to Art. 2 Sect. 1 of the basic law, the basic rights of smokers are easily restricted, because they fall under the provisions of simple law and thus may be curtailed through any legal norm, including common law and the constitution. On the basis of all this it must be assumed without justifying this more accurately now, that in future, the executive is allowed to maintain smoking bans without formal legal authority, certainly when these are restricted in time and space. This could be a dubious situation in the case of a total smoking ban, which is not a consequence of the interests of specific institutions.

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On the other hand, special privileges of the executive to restrict freedom must be available as before, in the interests of the aims of "circumstances requiring special powers". They must account for peculiarities, and must remain special privileges. As a special privilege, the executive must not proclaim a regulation for which the parliamentary legislator is responsible, because the former usually lies outside the specific interests of authorities. For example, an authority may not prohibit the consumption of cola-type drinks or the use of saccharine on its premises under the pretext of health hazards. This problem must be solved by the legislator responsible for law relating to foodstuffs. If he remains inactive, then the executive may not usurp its competence in the public administration sector, unless specific dangers make it imperative in this sector. For this reason the justification of smoking bans in administrative regulations on the grounds of the health hazards of smoking, give cause for concern. The active or passive smoker is exposed to possible health hazards everywhere, not only in public administration.

Hence those smoking bans proclaimed by authorities which are aimed at the prevention of general health hazards, are unacceptable. But they may be proclaimed to ward off specific dangers or irritations. On account of the increased susceptibility of relevant people cared for, no reservations exist against smoking bans in hospitals, sanitoria, kindergartens, public health administration offices. In view of special air conditions and for the sake of physical rehabilitation, a smoking ban may be proclaimed in swimming pools. Authorities may regulate smoking in small rooms where breathing air is scarce, such as public offices or submarines. Smoking bans may also be justified in special situations, where the physical and psychic well-being of the individual is particularly important. For example, when people sit for an examination, one must make special allowances for the needs of non-smokers. On the other hand, it may be appropriate in precisely this situation not to prohibit smoking in the interests of the smokers present. In this special case, and due to the considerable significance of examination results in the future working life of the candidate, it may even be necessary to house smokers and non-smokers in different rooms if it is not possible to achieve a solution acceptable to both parties. It should be mentioned in passing that such irritations during an examination must, as correctly stressed by the Provincial Court of Appeal at Muenster20), be stopped in good time, so that they cannot be used later for the amendment of unsatisfactory examination results. The employer, on the basis of his duty to provide protection, may be obliged to undertake special steps in the interests of acutely or chronically ill persons. Although §32 of the workplace regulation21) does not apply to the public administration sector22), the employer may be obliged, once again on the basis of his duty to provide protection, to keep irritations away from non-smokers in first aid rooms, rest rooms or recess rooms.

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However, the constitutional principle of relativity applies to official regulations which restrict some freedom, and to legal regulations. This principle states that non-essential or excessive interventions in freedom are against the law, that - to phrase it colloquially - it is forbidden to shoot sparrows with cannons. Because it is not relative, a total smoking ban in public administration would be unconstitutional. Because health hazards have not been demonstrated with sufficient evidence, regulations for the protection of non-smokers from same are not essential; furthermore, they are not necessary for the avoidance of significant or intolerable irritation. In well-ventilated public offices where only a few cigarettes are being smoked, at worst a trivial nuisance may arise. This must be tolerated in any situation where others do not exercise their rights of personal hygiene (is this perhaps a basic right too?) sufficiently or daily, or where they eat spices with a penetrating or repulsive odour. For this reason, a smoking regulation in force in Bavaria[23] seems unconstitutional because it stipulates that smoking in offices, during meetings and other official confrontations, is permitted only when everybody present agrees to it. Whilst there can be no objections to short-term smoking bans during conferences in small rooms with many participants, the regulation overshoots its aim when it stipulates that smoking in offices is conditional on the agreement of all persons present. In this way, oversensitive persons may prohibit smoking even when they are not intolerably molested. However, an administration must prevent both a dictatorship of smokers and the intolerance of non-smokers.

The public debate on smoking and non-smoking is influenced by too many global ideologies and philosophical concepts. This current trend in an epoch of neo-enlightenment supports the willingness of the State to regulate comprehensively, and to overestimate the amount of education people are prepared to accept. In fact, we centainly have a link with the Federal Revolution here, as Mr. Kaiser has stated. Indeed, this revolution has given us the reign of the Jacobins and Robespierres - "Virtue through terror".

Whoever refers to an order of cabinet[24] by the great Prussian king Frederick Wilhelm I of "tobacco college" fame, in which he declared police bans on smoking for certain plazas, walkways and roads, should in principle also agree to other restrictions of personal freedom; of these, dress regulations are only the most innocent. This would represent a significant retrograde step as regards our constitutional rights; and smoking, similar to other habits, represents an expression of the free development of the individual.

It is possible that unnecessary smoking bans imposed merely on social welfare grounds have caused the tailors in Chamisso's poem[25] to revolt as follows:

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Amongst other things the smoking pipe -
courage ! courage !
To the greatest vexation of the police,
must not be denied to us in public;
our king, that you must swear.

LITERATURE (All in German)

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2) C.f. §9 of the law for protection of youth in public in the version of 27.7.1957 (Bundesgesetzblatt I S. 1058)
3) Administrative law as a concrete constitutional law in: Laws and courts in our times, edited by Bettermann and Ule (Cologne, Berlin, Bonn, Munich 1971) p.212 -
4) e.g. Administrative Court Slesvig, decision of 20.9.1974, Juristische Rundschau 1975, p. 130 -; appropriately criticised by Scholz, Juristische Schulung 1975, p.235; see also Merten, Juristische Schulung 1976, p.350
5) C.f. Merten in; Topical problems of police law (Berlin 1977), p.102
6) Decisions of the Federal Constitutional Court Vol. 39, p.1 - (particularly pp.42 and 45-)
7) C.f. Merten: Constitutional State and monopoly of power (Tuebingen 1975), pp.65 -
8) C.f. Ule: Strikes and police (Cologne, Berlin, Bonn, Munich 1972)pp.68 -
9) C.f. Press release 102/75 of the State Ministry Baden - Wuerttemberg of 14.2.1975
10) C.f. press release op. cit.
11) Reply of Federal Government to a short question by parliamentarians Vogt, Dr. Bluem and others of 10.5.1974 (Bundestagsdrucksache 7/2070 p.12, R.H. column)
12) C.f. Merten: The right of free development of personality, Juristische Schulung 1976, pp.345 -
13) e.g. Heckel: Publications of the association of teachers of German constitutional law, Vol.26 (Berlin 1968) p.50, principle 12
14) 1. Moses 2, 7. This reference is theologically inappropriate; because the German "Odem"(Hebrew : Nephesch) means spirit in the sense of being alive, respiration (c.f. Noth, biblical commentary to the old testament, Vol. I 1, revised by Westermann, Neukirchen (Vluyn 1974) and does not relate to breathing air free of exhaust gases and tobacco.
15) C.f. §8 Sect. 3 N°. 2 and Sect. 5 half p.2 of ordinance relating to operation of motor vehicles in passenger transport of 21.6.1975 in the version of the changed regulation of 19.4.1977 (Bundesgesetzblatt I, p.598)
16) C.f. decisions of the Federal Constitutional Court Vol.33, p.1 (9-), Vol.40, p.276 (283-), Vol.41, p.251 (259-), Vol.42, p.229 (233-)
17) The special powers circumstance in: Publications of

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Association of teachers of German constitutional law, Vol.15 (Berlin 1975)p.151-

18) See also Oppermann: According to which legal principles should the public education system and the position of those involved in it, be regulated? Expert opinion for the 51. German lawyers Conference (Munich 1976) C48- with further references

19) This is also referred to in Federal Constitutional Court, decisions Vol.41, p.266

20) Decision of 19.5.1976 - IIIA 801/75 - Neue Juristische Wochenschrift 1977, p.121

21) of 20.3.1975 (Bundesgesetzblatt I, p.729)

22) C.f. §1

23) C.f. Joint statement of the Bavarian State Office, Bavarian State Ministry and Bavarian Minister of State for Federal Matters of 30.8.1976 -N° I, A6 - 450/2 - in: MABl. N° 28/1976. p.722

24) of 9.12.1832 (Law collection for Royal Prussian States 1833, p.1)

25) "Clothesmakers courage" in: Adalbert von Chamisso, Works in one volume (Winkler-Verlag, Munich) p.134

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DISCUSSION

Paper by : Wischnath

Paper by : Merten

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J.H. Kaiser:

We now have a broad basis for discussion. May I summarise everything, the assessment of the basic medical questions and the legal side, and perhaps begin the discussion by attempting, whilst we are still under the influence of yesterday's and today's presentations, to review a few items and then throw the meeting open to discussion; do you agree to this? - (Agreed).

The question is whether a non-smoker can insist on a smoking ban because he fears health hazards. But it was also asked with what authority an employer can declare a smoking ban. Here the lawyer depends on a medical opinion. Most medical statements yesterday were in agreement that in a healthy workforce, health hazards by passive smoking are not proved. Smoking bans which declare that passive smoking is detrimental to a non-smoker, stand on a weak foundation. Nuisances from acute reactions and irritations may certainly be generated, but according to all investigations carried out on humans, no significant disorders are produced. Hazards and impairments have so far not been verified in passive smokers, either empirically or experimentally.

However, such medical conclusions do not apply to some special population groups such as old and sick people, children and that 1% of the population who have particularly sensitive bronchi: The conclusions also do not apply to persons in hazardous jobs where gases, vapours, dust, etc. may lead to combined effects.

I think that the results of these investigations represent a considerable advance. In the practice of government and jurisdiction and in legislation, some basic assumptions will have to be checked. All of us react allergically when environment and health are at stake. But no further progress will be made with the naive and unfounded assumption that health may be impaired by passive smoking. As Mr. Merten has said, one must ask again and again whether intelligent consideration of others should be on an equal footing with legal norms.

Having thus made an attempt, naturally with the help of Mr. Valentin, to review the position, I ask you to comment.

C.H. Ule:

Mr. President, ladies and gentlemen! On considering both of the papers read this morning, I get the impression that the existing difference of opinions has emerged very distinctly on the legal side.

Mr. Wischnath has - may I say, without examining the problem in detail - presupposed a right of being able to breathe freely, i.e. to free breathing air, as a basis of his reflections; he appears to start with the assumption that Art. 2 Sect. 2 of the basic law can impart such a right, perhaps even a basic right.

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In this context, may I reiterate one point of view. I think that this immediately elevates the problem to a wrong level where no decision is possible at all. This shows up quite clearly in the second paper, and in the medical addresses to which we listened yesterday. In German law for the protection of the environment and protection from emission, the demand to firmly anchor a basic right of a natural environment in the basic law, has been made for years. Particularly the Free Democratic Party has advocated this concept; it has been discussed at length in conferences. But ultimately it was realised that nothing would be gained with such an insertion, because this basic right cannot be granted absolutely. It can only be granted in accordance with those laws which delineate harmful and harmless effects on the environment. The federal emission law decides even this question. All of you who are concerned with it, particularly our medical colleagues, know that the borderline between harmfulness and harmlessness must be defined. With respect to air pollution, recall the concept of the Technical Committee on Air which attempted to define the borderline exactly. Even in this sector there exist e.g. environmental effects caused by industrial concerns which remain below the Technical Committee on Air's emission value limits; in fact they remain so far below this limit that nobody would imagine a dangerous environmental effect is generated at all. Surely there is some deterioration of the atmosphere and the ideal state of the presence of clean air which Mr. Wischnath has presupposed is not fulfilled in this case.

Thus in the final analysis - this is shown quite clearly by Professor Merten's paper - the problem aims at the following question: Is passive smoking a significant nuisance or a health hazard? This is a question which cannot be answered by lawyers; it must be decided by medical experts. If it is not dangerous and not a health hazard, then the legal problem is solved in my opinion; one cannot then argue, as Mr. Wischnath apparently wants to, that a restriction of freedom exists even when the non-smoker is forced to tolerate the smoke produced by a smoker, irrespective whether or not a health hazard exists. I do not think that a legal basis can be found for this situation in our constitution.

I particularly liked two aspects of Mr. Merten's paper. Firstly, the idea of reducing the problem to the appropriate dimension, as one might say. He has rightly stressed quite a few restrictions which occur in human coexistence at the workplace; to call for the legislator in these cited instances would be completely senseless. One might realise that perhaps some individuals like to work with musical accompaniment, whilst others do not. As long as the musical accompaniment in his workroom is such that nobody is disturbed, then surely this is an aspect of the free development of his personality. If he does the same thing in a large office and thereby disturbs his neighbours, a problem arises; namely how a regulation can be arrived at, which caters for all interests represented in such a large room where about 100 or 150

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employees are seated. In any case, I think that we can only arrive at sensible solutions if we proceed as suggested by Mr. Merten in his paper: We must differentiate, i.e. we do not as in a black-and-white painting, accentuate and ideologically stress the differences; instead we consider realistically in individual cases, whether something may or must be done I think we would comply with the request for a free society much better if we were able to achieve this by agreements, rather than calling for the state legislator, who can only proceed with coercive measures.

E. Schmid:

Three questions have come to my mind; I ask you to forgive me when I put them in a somewhat less finely honed German than that used in the speeches of this morning. Mr. Wischnath, I do not think that one can use the God-given natural air as an argument. You must remember that God-given natural air makes a considerable proportion of our fellow humans gravely ill through allergies, hayfever, colds; think of the many pollen allergies from which about 12% of our population suffer, often so badly that they must be hospitalised. Hence things natural are not always beneficial. This was my first point.

Next I would like to ask Mr. Wischnath: As part of the anti-authoritarian wave of democratisation towards the end of the sixties, smoking rooms were introduced in schools. In the Heidelberg area we protested violently, from the medical aspect. However, we were told by the lawyers that this was absolutely essential for the development of a pupil's personality. (Interjection: Wrong! -They were not lawyers but politicians!) - Politicians then, but somehow they were supported by lawyers. I can remember very well that of my daughter's school at least, smoking was not restricted to the smoking room but, naturally, also took place in the toilet and even in the classroom; and one would have been considered authoritarian had one protested against this. I would be interested to know on what legal principles the introduction of such smoking rooms in schools was based at the time.

Finally I have a third question for Mr. Merten. You have quoted a swimming pool as an example and have stated that one could consider banning smoking for whatever reasons in such a locality. I would like to hand the swimming pool principle from the medical experts over to the lawyers. We know that swimming pool water has to be very strongly chlorinated, and we know that a considerable proportion of people contracts chlorine conjunctivitis each summer; this ailment can be very stubborn and may drag on for months in certain circumstances, thus making it impossible for affected persons to work. We

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also know that swimming pool water is frequently a saturated urine solution and that trichomonads are often present, i.e. germs which may cause a stubborn vaginal discharge. In spite of all this, we allow or even recommend swimming for health reasons. Surely there are parallels between a health hazard mentioned in the above three points, and a health hazard by passive smoking. What is the legal aspect, once these things are related to each other? I do not know whether a parallel is legally possible at all, but I would like to hear it discussed.

G. Buchlmeyer:

I would like to reiterate that Mr. Wischnath has mentioned the workplace regulations both yesterday and today.

In fact the regulation that wholesome air must be available in sufficient quantities, has not been formulated to the satisfaction of all concerned. We think that the legislator has not been very precise linguistically and conceptually in this instance. Wholesome indeed means, as you, Mr. Wischnath, have established from the Duden, "beneficial to health, health-promoting". However, we cannot insist on air beneficial to health, be it in the Central Black Forest or in Sylt. The commodity we can insist on, in a medically reasonable manner, is hygienically neutral air from which no health hazards need be expected.

G. Fuelgraff:

Mr. Merten has stated that one should not raise every problem to the constitutional and philosophical level. But if I have understood you correctly, Mr. Merten, in your address you also have derived a right to smoke from the constitution. In fact, are you not taking things too far in invoking the constitution in the derivation of a right to smoke? In my opinion the problem should be considered at a lower level; we must realise that apparently any society, our included, legalises certain poisons and penalises the use of all others. When we argue with the help of the basic right to smoking, which must not be restricted in any way since this would be contrary to the liberal character of our society, then I ask: Why just tobacco? What about the basic right to smoke Marihuana?

Everybody has stressed that the health hazard from passive smoking in otherwise healthy persons is certainly insignificant, if it exists at all. But it appears to me that this is not the only problem we are discussing here. The decision on a permission or prohibition of smoking in rooms where smokers and non-smokers meet should, in my opinion, not depend on the existence of such a health hazard, and not on the degree of objective nuisance, but purely on the question whether anybody feels subjectively irritated by it. Indeed, I am somewhat

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surprised that you do not attack a regulation e.g. in the public sector, which states that smoking during conferences is permitted only if nobody objects, as not conforming to the basic law. On the other hand, I consider analogies to other sectors of environmental hygiene, acceptable. Surely one has to distinguish between avoidable and unavoidable deterioration of the environment. For this reason alone, I consider it inappropriate to compare the fact that pollen which certain people cannot stand, exists during harvesting with the claim that smokers willingly and knowingly, for the sake of increased pleasure, affect the air of those whose pleasure is not increased by smoking. However, we must certainly justify a deterioration of breathing air in conjunction with pleasurable sensations.

H. -W. Schlipkoeter:

During the discussion about the law for protection from emission the question of collective or individual protection arose again and again. It appears that this was not stressed in the papers read by the lawyers.

An example where individual protection is appropriate is, as I would imagine, a conference - where elderly gentlemen usually meet - with people present who suffer from acute bronchitis or emphysema. The question arises whether the whole group or only those three to four gentlemen who are present with their diseased breathing passages, must be protected. This is a most acute problem of emission protection. I should like to ask the lawyers whether one ought to think along these lines also.

H. Schievelbein:

As a medical man, I have the impression that the whole problem is not a medical but more a legal one. In this respect I have a question for our legal colleagues: To what extent are the court decisions made in this context - some of which owe their existence to Mr. Wischnath - prejudicial to future jurisdiction? As far as I know as a layman, there are decisions by provincial courts of appeal which are often quoted by subordinate authorities to justify their decisions.

H. -J. Woitowitz:

I have a question which may appear to be of marginal importance. Yesterday we were told by Mr. Klosterkoetter that a non-smoker who, as a passive smoker, has to contend with the "perfume", may wash himself, for example when his hair absorbs this "perfume". What about clothes? I note than in some conferences, my coat has absorbed this "aroma" to a high degree by nighttime; now if I have proclaimed an obligation to cleanliness, I should take my coat to a dry cleaner. By next morning, the absorbed "aromatic substances" have not completely disappeared. The question arises whether this is a legal matter. Are we faced with damages to property, or is this circumstance quite irrelevant legally?

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A. Wischnath:

I have jotted down three or four points. Regarding the question of Prof. Ule: Obviously the term freedom to breathe has many connotations in basic law. In this connection, I have also used the term freedom of action. It is based on both Art. 2 Sect. 2, physical safety, since it is a significant constituent of same, and on Art. 1 Sect. 1, because it is an expression of free personal development. So much for this question.

Unfortunately, I cannot contribute anything to the question regarding the anti-authoritarian movement, exemplified by smoking rooms in schools, I suspect that interpretations are made broadly and that Art. 2 Sect. 1 is also extended to adolescents and pupils. We have parallels in parental and juvenile law; the child is no longer a governed object, but a separate personality in basic law. The question is probably related to this.

Now to the question of the prejudicial effect of the court decisions: The striking fact is that so far we have, I think, only two or three decisions against which appeals have been made. As a rule, the opponents were satisfied with the original decisions. I know that the dentistry board was considered a prejudice case, which subsequently had repercussions beyond Slesvig-Holstein. A whole series of our trials was related to universities, in Berlin with a different lawyer (Babendreyer); the hearing was not completed, because a smoking ban was reintroduced at the Technical University, whilst the case was still in progress. Subsequently, our colleague Rane has achieved the well-known Berlin verdict; Rane, who has represented a student at a business school, is in fact a smoker. He has vehemently declared before me that smoking in universities is out of the question. To this I replied that, had smoking been allowed in universities during my youth, I would not have been able to pass my final examination after seven-and-a-half semesters. The decision relating to students at Koblenz University was responsible for a major court case because the university was unwilling to comply; however, its officials recognised the decision at the last possible moment.

All these decisions are arrived at below appeal court level, but a strong tendency to draw comparisons is discernible, particularly in three industrial courts, rather than run the risk of a decision. The three industrial judges at Bonn, Bremen and Augsburg, whom I have met, have all had a very conciliatory effect on settlements by drawing comparisons; this was noticeable in the case documents and the judges arrived at these settlements using different arguments. A well-known large bank was involved in one case; this bank insisted on a revocation period of fourteen days, but subsequently accepted the legality of the comparison. It appears that it will be very difficult to arrive at an appeal court decision at a lower level. At present, appeals are in progress in the Federal Armed Forces case at Hannover, under Mr. Weiss,

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and the air traffic controller case at Bremen is also in progress in the form of a general hearing; the preliminary hearing was decided in favour of the controllers. An extensive industrial court case is in progress at Mannheim, and an extensive public service hearing is proceeding at Freiburg (Federal Post Office). However, I do not want to discuss these further since they are pending cases; it is not customary to report on these.

Furthermore, I would like to add one remark in relation to statements directed against myself: Such contrary opinions are quoted, in a concrete fashion, by the opposing side during hearings. This confrontation certainly takes place in court cases, with minor deviations. There are several lawyers, about five or six in the Federal Republic, actively involved in this.

With regard to clothing, i.e. legal relevance of same: Please do not ask me about this; I was a parent representative in the schools which my children attended for nearly twenty years, through all generations. When one returned home from a parents' meeting, one's suit was useless for about two or three days; it had to be aired, particularly when one's dear wife exclaimed: Go away, you stink! In this respect my freedom is generally restricted - I have to buy new suits. Every non-smoker thinks like that when he arrives somewhere in his virginal suit; the smell adheres primarily to a suit, and it really takes one-and-a-half to two days before it disappears through airing. I think that even this is a nuisance.

D. Merten:

I have the impression that both medical and legal people pass problems to the other side as in a game of ping-pong. I believe that one has to differentiate.

The question about the health hazard of passive smoking, and under what circumstances physical disorders such as eye irritation may occur, is of a purely medical nature. Courts cannot answer this question; one has to ask the experts. If however it is found that passive smoking is, or is not, a health hazard, then the lawyers have to decide in which cases and under what conditions smoking bans may be proclaimed, and whether basic rights of smokers or non-smokers are touched. In such cases they must base everything on medical knowledge which they have to obtain from elsewhere.

Difficult fundamental questions involving basic rights emerge with regard to smoking in schools and the establishment of smoking rooms; this always happens when basic rights of minors are involved. They are entitled to basic rights, but may not exercise all basic rights themselves. Independent of this, the state, for the sake of its educational function guaranteed in the basic law, may prohibit smoking by adolescents in schools, particularly on account of the increased

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health hazards at this stage of life. Those schools which have established smoking rooms on legal advice did in fact receive very bad counsel. It was more likely the spirit of the era which led to this, and one should not always give in to this spirit.

The following remarks must be made in regard to the question about smoking in public swimming pools, where the bather is sometimes subjected to significantly increased irritation caused by the addition of chlorine to the pool water: Indeed, a basic rights problem emerges here when the bather's health is restricted, or he is injured, by such additives. On the other hand, this addition of chlorine is absolutely essential, if my medical understanding is correct, to destroy dangerous bacteria, and to prevent the spreading of serious diseases. For the sake of preventing such diseases, the individual must accept moderate health irritations and restrictions. A similar problem arises in the addition of fluoride to drinking water to prevent diseases like tooth decay. Here the question of excessive interference with physical integrity and personality arises. It is possible that this step would be unnecessary, were it possible to prevent tooth decay by some other method.

The problem is different in passive smoking. Here it is not a health hazard but rather a nuisance which the bathers may be subjected to. I have stated in my paper that smoking can be prohibited in certain localities if the nuisance is significant, i.e. when the irritation is particularly unpleasant due to the nature of the locality. Thus a smoking ban in canteens appears appropriate, since many people there may find smoking unpleasant on account of the food, and because meal times may be short. The same must be said for swimming pools, where reasons other than smoke irritation may also apply. Hygiene aspects and health hazards from discarded cigarette butts also play a part here. Hence I consider such short-term smoking bans admissible; in saying this, I do not imply that they must be introduced, only that they may be proclaimed.

The workplace regulation was mentioned once more; it was stated that obviously, the legislator had asked for something impossible with the concept of "wholesome" air. Our colleague Mr. Kaiser has already pointed out yesterday in a very charming manner that in this respect, Mr. Wischnath has overdone the art of word interpretations in his exposition. I also think that one should not hide too much behind the concept of "wholesome" breathing air in relation to the workplace regulation. One should not, Mr. Wischnath, expect too much of the legislator and imagine that he thinks deeply before he says anything, and first consults the Duden. In my opinion, the term "wholesome breathing air" in the workplace regulation seems to be simply the opposite to "unwholesome". And we find this concept of unwholesomeness somewhere else in the workplace regulation, i.e. in §14. Thus the legislator uses the terms "wholesome" and "unwholesome". Something which is unwholesome, and detrimental to health, is forbidden, and we

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hope that something beneficial to health, exists in these workrooms. But to construct differences between "bearable", "wholesome", "not beneficial to health", etc. appears to me to be nothing but juggling with syllables.

D. Masteit:

I am neither a lawyer nor a doctor, but I probably have other blinkers, I am a politician. I have a question for the lawyers in this room.

Amongst other reasons, the decisions in Slesvig-Holstein and the decision of the Supreme Administrative Court at Berlin regarding smoking during a course of instruction and at the technical university, are justified by stating that a smoker is a disturbing influence on the sense of law and order, and how do lawyers keep away from this legal decision. This was my first question.

The second question again refers to swimming pools, to bathing caps and smoking. There are other parallels too, one can also compare bathing water and air from another aspect. Any of us who swim in the Mediterranean Sea during summertime, are aware of, and think nothing of, the fact that people urinate in the sea. But how would anyone of us feel if he knew that his neighbour in a confined swimming pool urinated in the water. We have the same situation with smoking in the open and in an enclosed area. I think we can compare breathing air and bathing water in this case. Although no health hazard occurs in bathing water, everybody would consider such behaviour in a confined swimming pool as a filthy habit ...

J.H. Kaiser:

I do not know whether or not the following is a relevant contribution; I recall from my soldier days, an officer telling me that he had seen a sign in a swimming pool for soldiers: "Do not urinate" (or words to that effect). This ban appeared rather senseless, since it was not possible to establish or enforce the state of affairs individually.

D. Merten:

Mr. Kaiser, this is precisely the point which I attacked before when I spoke of the rules-mania of the legislator. The legislator must consider his regulations carefully. Whenever he proclaims rules, he must strengthen his bans with sanctions and insist that norms are carried out. There is nothing more dangerous in a constitutional state than the acceptance of a defiance of its regulations without sanction. You merely have to recall the well-known excesses in demonstrations. Hence the legislator should not proclaim superfluous regulations and establish norms which, as he well knows, will not be heeded by the public; he should also realise that infringements cannot be discovered sufficiently often. This

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applies to, e.g. the Gessler hats of William Tell fame which we find, in the form of incomprehensible speed limits all over the autobahns, and which need not be heeded within reason. However, appeals to good behaviour and upbringing must be distinguished from the rules of legislators.

The concept of the person causing a disturbance was also brought up during the discussion. Here we are dealing with a matter for police law. Anybody who infringes with public safety or order, causes a disturbance. Mr. Kaiser has pointed out that anything which is socially adequate, is socially acceptable and cannot constitute a disturbance. My sensivity regarding the term social adequacy would cause me to formulate differently. However, anything which is permissible by law cannot constitute a disturbance. Thus smoking is basically not a disturbance, just as any other kind of human behaviour within the law is not a disturbance. On the other hand, a smoker can create a disturbance if he acts in contravention of a smoking ban which happens to be in force.

It has rightfully been stressed, and thus recorded, that we should not elevate everything to constitutional level; I have said so before. The question of the relationship between smoking and constitution was raised. When you read through the basic law you will indeed not discover the right of an individual to smoke, anywhere. However, there is the basic right of general freedom of action, which from a dogmatic view point, is somewhat inconvenient. It simply states that within certain limits, everybody may do or not do whatever he likes. This can include all human activities and abstentions. In fact, somebody has even considered that the prohibition of using a sexually not fully developed bull for breeding purposes, interferes with his right of personal development. The right to smoke is a particular case of this right. There is, however, a difference between smoking cigarettes or marihuana, because the basic right to freedom of action can be restricted. If certain drugs cause significant hazards in the way of affliction the legislator is empowered to prohibit the sale of same. It is also difficult to understand why the general public should bear the costs of treating addicts where an individual makes use of his right to smoke marihuana.

(Interjection: May I interject briefly! The general community of insured people also bears the costs of homes for the treatment of smoking addicts. I do not want to enter into a discussion on marihuana; I merely wish to say that in my view, smoking marihuana is much less hazardous to one's health than smoking tobacco!)

On account of his duty to provide protection, an employer must make special provisions for acutely or chronically ill persons. A smoking ban may be proclaimed at a conference attended by allergic, asthmatic or bronchitic people, because on the one hand, a health hazard would exist; on the other hand, the pleasure of smoking is prohibited for a

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short time only. But I think that once again, one should not proclaim general, abstract rules, but leave this to the common sense of the participants or, if necessary, to the chairman's executive power.

One last remark regarding current court decisions. With respect to prior decisions in legal cases, I state vigorously that - apart from decisions of the Federal Constitutional Court which are binding everywhere, scientists excepted - any court decision merely applies to a particular case. Beyond this, it is ineffective as a matter of principle, if one ignores procedural institutions, such as the execution of legal powers, etc.

Certainly, one orientates oneself with some decisions, particularly those of the Supreme Federal Courts. Under certain conditions, courts must not deviate from the decisions of other courts; but this does not mean a direct connection. So far, decisions relating to passive smoking have only been proclaimed by lower courts. Previous experience, e.g. with the interpretation of the freedom to demonstrate, indicates that these courts attempted to read very many things into the basic law. Later on, they were told by the Federal Judicial Court that this cannot be done. Thus I do not consider the current court decisions to be very significant.

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PASSIVE SMOKING AT THE WORKPLACE

H. Schmatz

I am faced with a difficult task:

On the one hand, as a keen smoker I am not free of prejudice; on the other, as last speaker after a series of excellent expert previous speakers it is not easy to say something startlingly new. As a matter of course, my topic "passive smoking at the workplace" has already been considered; hence, lest I repeat, in inferior style, statements which have already been excellently formulated, I am forced to consider the topic from a different aspect. As a ministerial official it is appropriate to view the topic from the legislative aspect.

There exists a good axiom for the legislator - Prof. Valentin has formulated it yesterday - i.e,: As much legislative coercion as necessary and as much freedom as possible. Hence the legislator will, if he is well counselled - and this is what ministerial officials are there for, accurately study the results of the appropriate scientific discipline and obviously also keep an ear to the pulse of the general public. In other words, he will ask whether certain situations must be regulated in accordance with scientific findings, and whether this regulation is in objective and subjective agreement with public needs. This principle should also be applied to the problem of smoking at the workplace.

The increased public awareness of the environment is evident not only in nuclear power stations and public initiatives, but has also given increased emphasis to the protection of non-smokers from smoke in recent years. In fact one notes - our two-day expert conference has also made this quite plain - that both medical and legal aspects of the topic "passive smoking at the workplace" are judged by very different, even opposing, standards. This may be mainly due to the fact that present knowledge from research into the health effects of passive smoking precludes a final uniform assessment in expert circles.

From the aspect of social and health politics, one should make up a balance sheet for "smoking" in general, before a value is assigned to "passive smoking".

The consumption of tobacco, particularly the consumption of cigarettes, has risen spectacularly in the last decades. In 1936, the average consumption was 570 cigarettes, in 1938 it had risen to 692 cigarettes. 35 years later, in 1972, consumption had quadrupled to more than 2,000 cigarettes per person. Nearly every citizen of the Federal Republic aged between 20 and 65 years is a smoker. It is particularly disturbing

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that people reach for a cigarette at an ever decreasing age. Thus a representative survey shows that about 70 out 100 pupils between 8 and 12 years have smoked at least once. That is the situation.

What about the economic balance sheet for smoking? In 1972 the treasury received 7.8 billion DM from tobacco tax. A horrid sum, which however cannot completely be entered on the credit side when one considers the social expenditure which our society has to defray: In the answer to a short question of 10.5.1974/BT - printed note 7/2070 the federal government has - for the year 1972 - put a figure between 15 and 20 billion DM on it, consisting of health and retirement insurance and private life insurance for health disorders due to smoking and for deaths, of

- 8 to 9 billion DM, i.e. 1% of the gross national product for combined wage payments during sickness caused by smoking and,

- further costs, in billions, through increased mortality and early retirement of smokers,

This socio-economic balance is, however, not the sole negative aspect.

This is so because the figures quoted are extremely questionable. They are estimates and, in themselves, not always derived logically. In particular, a comparative expenditure caused by the non-smoker does not exist; although it is said that the latter "dies healthier" and lives longer, he also consumes more goods beneficial to health. Hence a solution cannot be approached with a purely economic outlook. In my opinion, the health hazards which a smoker must, and consciously does, tolerate in order to achieve his smoking pleasure, are far more serious. "Consciously tolerate" because there is also an active asset in this balance sheet, i.e. the pleasure and joy of smoking.

Nevertheless, ladies and gentlemen, the overall balance is undoubtedly negative and many a non-smoker asks, with a certain amount of justification, why tobacco goods are not completely banned. This would solve the passive smoking problem too, and in the best possible way. If these goods were a novelty today, they would hardly be permitted; in fact, they are subjected to the law relating to foodstuffs because they are consumable; this law admits only those goods to the market which have been proved to be hygienically unobjectionable.

In this context a long-term program of the Swedish social ministry is of interest; by means of an absolute advertising ban, an annual price increase of cigarettes by 10%, abolition of cigarette vending machines, staggered cessation of cigarette sales and by a ban on selling tobacco goods to minors, it hopes to gradually "dilute" the blue smoke of tobacco somewhat.

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I doubt whether this initiative, which could also solve a large proportion of the problem of passive smoking, will be very successful. Instead I fear that keen smokers - as has been done before - would grow tobacco in their backyard gardens and that a spirited black market trade - as has happened before - would dominate the smoking scene, Bismarck, who was himself a smoker, is reported to have told his worried finance minister during a discussion about tobacco tax increases, that he knew only one man - a sailor - who had given up smoking. This sailor had shaken out his burning pipe on a powder keg. A solution to the problem under discussion can thus not be expected by a general smoking ban. I am also of the opinion that such bans would constitute an intrusion into our pleasure culture and that they would make life duller and sadder. When we continue this thought we would indeed arrive at a prohibition of alcohol, which Mr. Vorndran has addressed so charmingly with his welcoming words last night. The list could be continued.

Hence we can only seek partial solutions acceptable if possible to both interested groups, smokers and non-smokers, and appropriately accounting for the Pro and the Contra, as discussed yesterday and today.

I shall thus attempt to compare both Pro and Contra arguments from a medical and legal aspect. One school of thought - and may I nominate Professor Dr. Klosterkoetter as its typical representative, whose expositions yesterday have impressed me very much - is of the opinion that as yet there is no evidence that passive smoking - even in situations of long-term exposure to tobacco - may lead to an increased health risk or even to classical smoker's diseases in healthy people.

The experts, on the other hand, do not pose the problems of non-smokers subjected to restrictions of their well-being, and of transitory irritations appearing in passive smokers which could be considered significant nuisances.

Other medical experts - including Professor Dr. Schmidt from the University of Heidelberg - have a completely contrary opinion: They base their views on the health risks of passive smokers on the following:

- According to some investigations the side stream smoke of a cigarette, to which the passive smoker is exposed, contains significantly more carcinogenic and other harmful substances than the main stream smoke which the smoker inhales directly;

- The number of premature and still births in mothers who smoke is significantly higher than in mothers who do not, and

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- Acute inflammation of breathing passages is twice as high in children whose parents smoke.

Professor Dr. Schmidt further argues that when the definition of health given by the W.H.O. is used, then the irritation of non-smokers by smokers against which nobody argues any more, must certainly be considered a restriction of health, because passive smoking does and can influence physical well-being negatively.

Ladies and gentlemen,

I must confine myself to the opinions expressed by the chief exponents of both sides, on the subject of passive smoking. As a simple administrative lawyer, I obviously cannot decide which of the two sides is right. But it seems to me that one cannot presuppose with sufficient probability that the health disorders found in smokers occur - to a lesser extent - in non-smokers through passive smoking. It is also not possible to either accept or exclude with certainty a potential health hazard from passive smoking, certainly not with the current state of medical knowledge. But one may argue equally well that under unfavourable circumstances, the physical well-being of persons affected may be restricted. I have no intention to derive this from the definition of health by the W.H.O., which to me appears quite useless. I do not want to discuss my reasons for this view at length. The previous facts seem reasonable to me for the simple reason that even a heavy smoker might find the thick smoke - not his own smoke, in fact - of several smokers in a small room intolerable. In past years, we have often had this situation in badly ventilated conference rooms. Things have improved considerably nowadays. In my opinion, from a medical aspect there is, according to the present state of knowledge, no reason for legislative steps to protect non-smokers against passive smoking at the workplace.

Now to the legal side of "passive smoking at the workplace". Here both jurisdiction and debate essentially lean on

- Article 2 Section 1 of the basic law which grants the basic right of free development of one's personality, provided one does not violate the right of others, and

- on Article 2 Section 2 of the basic law which guarantees the right of physical safety

In the legal assessment of passive smoking, these two basic laws oppose each other. On the other hand, the few available court decisions have distinctly favoured the non-smoker. In fact, the Supreme Court of Appeal at Berlin has, in 1975, guaranteed the smoker a right of free development of his personality but has also decreed that this right should be secondary to the right of a non-smoker for physical safety. Similarly, the Slesvig Administrative Court stressed the precedence of the right to non-polluted air in

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relation to the right of smoking; its justification is that "indeed not everybody may pursue his personal pleasures at any place or time by invoking Art. 2 Sect. 1 of the basic law, irrespective whether these activities include smoking, blowing the trumpet, or others whose pursuit may become an irritation to the environment."

Advocates of a complete smoking ban go even further; they consider the forced inhalation of tobacco smoke at the workplace as duress or even bodily harm. They hold the view that the non-smoker is twice restricted in his freedom. Firstly he is forced to breathe unnaturally, known as shallow breathing, and secondly he is restricted by the inner, psychological stress of being unable to move to a different, smoke-free workplace.

This legal interpretation is vehemently attacked by other experts. They are of the opinion that every employee must accept those disturbances which arise when anybody becomes a member of a team. They argue further that the spatial confinement at the workplace requires that the individual must be more tolerant to the life styles of other people, than he is at his home. As a matter of principle, this would include smoking at the workplace.

My personal legal view tends to be in agreement with the two cited court decisions, whose tenor is appropriate protection for the non-smoker at the workplace. However, I cannot quite agree with the view that inhaling tobacco smoke at the workplace must be considered duress or even bodily harm to the non-smoker. If one were to adhere to this view, then daily life would be - if I may exaggerate slightly - an endless chain of physical violations which nobody could stand for any length of time.

Nevertheless, ladies and gentlemen, the discussion about passive smoking at the workplace has precipitated the Workplace Regulation and has led to a series of further regulations, particularly in the public sector, for the protection of non-smokers from passive smoking. This obviously excludes smoking bans imposed in certain work situations on account of danger of fire or explosions. The number of these, usually legal, bans is quantitatively not excessive. Naturally, the problem of passive smoking does then not exist. A definite smoking ban in workrooms which favours non-smokers, was first incorporated in §32 of the workplace regulation. It stipulates that the employer must take appropriate steps for the protection of non-smokers from irritation by tobacco smoke.

The protection of non-smokers in the workroom can, in my view, not be derived from §5 of the regulation, which stipulates hygienically wholesome air for workrooms.

Legislators have not done anything else in this respect and I think that this restraint is appropriate at the present time.

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If I now attempt to draw a conclusion - perhaps in the role of an assistant legislator - from this conference, I arrive at the following results:

1. Non-smokers may be irritated at their place of work by the smoking of others, perhaps even be impeded in their activity, but their health is not endangered.

2. The task of health politics is to prevent health hazards from occurring, as far as this is possible. According to the current state of the debate, there is however no need for legislative intervention.

3. A total smoking ban at the workplace may be considered, if a significant irritation or even impediment of passive smokers is to be expected. This would, however, be the concern of the employer.

4. The above thesis has precipitated binding regulations for the protection of non-smokers in public offices.

5. A similar regulation could be made for the trade and industrial sectors, and for other services, not yet considered. The workplace regulation allows the employer to make relevant rules within his industry, provided special circumstances at the respective workplace are taken into account.

6. There is no need for a general, legally imposed smoking ban, mainly because of the possibility of solving individual disputes at employer level. Furthermore, consideration of the individual case affords the possibility that one needs to interfere with the rights and personal sphere of smokers only when the interests of non-smokers are really affected.

7. One key word, ladies and gentlemen, does not appear to have been mentioned much in the preceding discussions: Tolerance. The tolerance of the smoker towards the non-smoker, but also the tolerance of the non-smoker - and here I speak subjectively once again, as a smoker - towards the smoker. Tolerance towards the needs, lifestyles and opinions of others is a basic, indispensable prerequisite for all sectors of human coexistence. Without tolerance, ladies and gentlemen, it is not possible to strike a satisfactory balance of mutual interests in the tense atmosphere between smokers and non-smokers. Thank you very much!

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CONCLUDING

DISCUSSION

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H. Valentin:

Ladies and gentlemen! As an introduction, may I stress once more that we are discussing the topic "passive smoking at the workplace" in order to obtain an analysis and reassessment from both the medical and legal aspect. Personally, I think that a few facts have been made clear. The problem cannot be imposed on the various legal specialists, nor on the medical experts alone. On both sides, the expositions have led to some clarification. We shall attempt to collate and document the contributions. Then they will have to be discussed further. So much by way of introduction.

E. Schaetzing:

As always, when lawyers and doctors meet, they talk in different tongues. This applies here, too.

To begin with, I have brought along a "butt destroyer" in order to promote better understanding; I would like to show it to you. It is a practical compromise device. I do not want to provoke anybody when I now light a cigarette. Here I have a small container with nothing in it - no water, no false bottom - we put the cigarette inside it and it is immediately extinguished through lack of oxygen.

Let us face it: Primarily, the non-smoker does not suffer from the smoke, but rather the obnoxious fumes of the smouldering butt, particularly if the latter is squashed and becomes charred; the entire room will then stink like that. Having used the butt destroyer, the housewife may subsequently get rid of the clean butts. Even at the workplace, a non-smoker is annoyed by the naughty smoker to a lesser degree only. This concludes my introduction.

I did a lot of thinking last night. The nicotine content of the air, and its carbon monoxide content have been delicately probed. But is this sufficient. If a "pub" is reserved for non-smokers, the air will also become stale after some time and even there, ventilation is necessary. A significant olfactory exchange of human gases and waste gases takes place; I am not speaking about methane, probable digestive gases or trimethylamines of a menstruating woman or adolescent sweat odours, but I include the direct oral or nasal discharge. The more or less aromatic odour of a diabetic is still acceptable ..., but the foetor ex ore of someone with a stomach disorder, is certainly a most significant nuisance - some carcinomas can and must be smelled - although nobody will become sick by doing so. But let us not forget one thing; we are talking about a multi-factorial exchange. One could quote tuberculosis, which still exists and which is usually transmitted by droplet infection. A very likeable person may have done nothing else but smile at his neighbour with a somewhat moist breath. However, I do not know of any cases where the basic law was invoked because of such a dangerous smile; lung cancer can never be

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transmitted in this direct fashion. Only the militant anti-smokers have achieved this invocation; I say anti-smokers intentionally, because there are very peaceful non-smokers who can be just as amicable as most smokers.

But smokers must be graded to some extent, into those who enjoy it and do not suffer from their nicotine dependency, and into those who want to give up smoking, i.e. its evils, with genuine desire or for sensible reasons, or a combination of both, and are unable to do so.

And they, ladies and gentlemen, are the group that really matters. Indeed, these people feel cheated by medicine, perhaps even by jurisprudence, and in particular, frustrated by research because there are no effective means which help them to overcome their vice. There is something amiss here. This group feels in continual danger of life and limb from the anti-smokers, and then continues to smoke for lack of a different activity which may satisfy their desires. To this I can, as a psychotherapist, say only that it is not a good therapy, because fear creates a great deal of harm. If just half of the money used for the whole anti-smoking campaign were used to conduct positive therapeutic research, we would be much better able to help this group. Smoking at the workplace would then also decrease, and this should facilitate the job of both lawyers and doctors.

G. Esser:

First of all, I would like to say that I am a passionate smoker. Ladies and gentlemen! After the address of Dr. Schmatz I am completely unsure of myself, having formed a more or less definite opinion beforehand. As a matter of fact, to me it appears that the representatives of jurisprudence have, today and yesterday, reduced the question of protection of non-smokers most convincingly to the problem of whether or not smoking is a health hazard or rather, whether it is a significant nuisance. Those medical experts who spoke yesterday, particularly Prof. Klosterkoetter, have summarised the state of the medical debate with the conclusion that an impairment of health by passive smoking is at present not recognisable. But now I hear from an administrative lawyer like Mr. Schmatz, that there certainly is a pointed contrary opinion which asserts that passive smoking can be a health hazard. On the basis of my own knowledge I cannot comment on this at all, I have no personal knowledge; but I now ask the following questions. If this is correct, if there is a pointed contrary opinion, why then have we not invited representatives of this pointed contrary medical opinion. This is the first question I would like to ask.

Now I have a second question for our legal colleague Professor Kaiser, or anybody else: If, on the basis of present medical knowledge, it cannot be denied that passive smoking represents a health hazard, would it then not be the right and duty of the legislator to take steps to protect passive smokers?

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J.H. Kaiser:

Since the last question to a lawyer is still fresh in my mind, may I answer it at once:

I have not presupposed that there still is a sufficiently well-founded medical debate on the question of a health hazard. I have previously made statements in this respect following decisions quoted repeatedly in a legal journal (NJW, pp. 2237-). Mr. Schmidt, whose name has been mentioned here, has replied to these in the same journal. Following this reply I see no reason for revising my opinion. If I understand yesterday's and today's discussion correctly, then there is no sufficiently well based difference in the medical opinion. To say it quite pointedly, if I was a judge to whom somebody had appealed, I would have to assume that health hazards have not been proved by empirical or experimental means. This is altogether in opposition to the courts cited which have assumed, with different weighting, that health hazards cannot be excluded on the basis of expert medical knowledge. Does this answer your question? (No) - Then please continue asking, I am prepared to answer all your questions from a legal aspect.

C.H. Ule:

Mr. Kaiser, you have not quite answered the question. I do not know whether you or somebody else wants to do it. I should say that yesterday I found the paper which Mr. Schmidt has somehow given to us, and have read it this morning. The question why this opinion is not discussed here, was on my lips even then. If we want to obtain the whole picture, then indeed such a contrary opinion which cannot be altogether unfounded - this I do not know, I have insufficient expert knowledge - should be raised somewhere. That is the question which has been put, i.e. why has one painted a completely uniform medical picture, without any opposition? Now you state that there are no variants here.

J.H. Kaiser:

The question was put to me as a lawyer; I have attempted to answer the legal question.

I have answered the question relating to Mr. Schmidt's opinion. I myself have had the pleasure of literary exchanges with him, if I may put it this way. As far as I am concerned, I certainly have acknowledged Mr. Schmidt's opinion by doing so. A lawyer is repeatedly put in the position where he hears different expert opinions; however, he is bound by "non liquet" and yet he must make a decision. Please take into account, and I do not have to tell this to Mr. Ule as a former administrative judge of considerable reputation, that such a decision can be very onerous. I merely need to remind you of Administrative

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Court decisions relating to questions of nuclear power stations. A lawyer has to make these decisions with the utmost modesty. But he must make a decision. And I have explained with all sincerity what I think are the proven and unproven facts, as stated by medical experts. May I now ask, Mr. Ule, does this clarify my part of the reply?

C.H. Ule:

I should say yes. But I think the question still remains unanswered. It probably still awaits an answer. In fact, Mr. Kaiser, the courts have gone much further than you; may I draw your attention to the famous decision at Muenster in the Steag case. They have stated that the prosecutor cannot prove that no danger exists, because it is not possible at all with fine dusts to establish to what extent these are present, and to what extent synergism becomes effective. I think this view is false; if it were correct, the consequences would be unimaginable. This indicates the courts unfortunately do not always show the necessary degree of reserve in respect of such questions of a technical/medical nature. If you allow me one more sentence, then I should say that this becomes particularly evident in the Steag case. I consider it unfortunate that matters which are the concern of the legislator, or of a proclaimer of rules who is subordinate to a proper legislator, are passed to administrators of the law, who are unable to make such decisions.

H. Valentin:

First of all, may I make a remark as president of the academy.

Yesterday I made it quite clear what the tasks and aims of the academy are; that we desire dialogue between lawyers and doctors so that we may arrive at an assessment without polemics and vilification. For years the public has known that the problem is significant; and various committees, of which I was a member, have listened to Mr. Schmidt in past years. This certainly led to polemics and vilification.

I thought we wanted a pertinent discussion here.

G. Esser:

So that my contribution to the discussion is not wrongly interpreted, I would like to stress that I do not know Mr. Schmidt at all; yesterday was the first time I heard about him; otherwise I would not have spoken. In fact, I have made some enquiries: I was told that Prof. Schmidt is, indeed, reputed to be a scientific outsider. I have asked my question only because it was said in the last address by Dr. Schmatz, in fact independent of Prof. Schmidt, that there exists a pointed contrary opinion which implies that passive smoking is a health hazard. This

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was the only item my question did refer to, not to the personality of Prof. Schmidt. This is my first point.

My second point: Mr. Kaiser, I still think that my question has not been properly answered. May I ask: In a doubtful situation how would you - with the purely hypothetical assumption that, on the basis of this contrary opinion, the health hazard of passive smoking at the workplace cannot be excluded - decide as a legislative lawyer, for "health" or for "relaxation"?

J.H. Kaiser:

I think I can give a clear answer to this question. I could refer you to my manuscript from yesterday where I have dealt with this hypothesis after some reflection, and where I have tried to present a balanced statement. If it is indeed true that health hazards are possible on the basis of experimental ethical-empirical tests, then the legislator must decide which consequences are to be drawn from this. A judge may not make this regulatory prerogative of the legislator in its widest sense relative, by assuming the place of legislator himself. As I have said yesterday, the judge is allowed to fall back directly on Art. 2 only in the most extreme cases if he wants to assert an individual claim for a non-smoker, when it has been proved - I emphasise: proved - that the so-called absolute hazard-threshold is exceeded.

H. Valentin:

I would like to say something else in relation to this. "It cannot be excluded" is the wrong phrasing. Basically we are not dealing with a legal or medical question but a political one. In the law concerning causes of accidents, the theory of an essential condition is current, i.e. it has to be proved with reasonable probability that essentially, a health impairment is due to one's occupation, type of work or, as in our case, passive smoking. If we insist on the no-effect as the basic level of protection then, as I have said yesterday, we must discuss this with the politicians in our capacity as scientists, doctors or lawyers, and not fear the consequences. This implies the setting of a different aim and subsequently, a decision by politicians. Now we must not always push the impairment of health, i.e. the medical justification, to the foreground, and then be unable to supply proofs. Advocates of smoking bans at the workplace should produce well-founded results, as the Zurich group, Mr. Schlipkoeter and Mr. Klosterkoetter have done. Only then can we have a discussion in an appropriate form.

D. Merten:

I would like to add some supplementary remarks to Mr. Esser's question, which may deviate somewhat from those of Mr. Kaiser.

I am in complete agreement with Mr. Kaiser that it is not the task of

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courts to decide matters which fall within the competence of a legislator. However, I have the impression that these matters are not only pushed onto the courts, but that the latter often attract the former. Today some judges do not consider themselves as servants but, with great relish, as masters of the law. I think that a stop should be put to this.

Mr. Esser's question went further than this, however. He queried whether a legislator is justified or even obliged to proclaim smoking bans, when it is possible on medical grounds that some hazards may probably be caused by passive smoking. Here we are dealing not only with a political, but also a constitutional law problem. As long as the legislator remains in an atmosphere which is neutral from the aspect of freedom, as long as he decides on measures which do not interfere with the freedom of a citizen, he is entitled to his own political judgement. But when he proclaims legal rules which forbid the free activities of an individual - and this includes smoking - then he may do so only in cases of impending danger. The freedom of a citizen may be restricted when his activities violate the rights of other citizens. But such a violation must be shown to exist. The mere assumption of the legislator that dangers cannot be excluded, is not sufficient. In other cases too, it is always possible that inpairment is caused by a combination of unfortunate circumstances. However, a danger must be sufficiently probable, even although it does not have to be impending with certainty. It is a question of medical assessment if, and to what extent, dangers may arise from passive smoking.

W. Klosterkoetter:

Can I once again bring up the Professor Ferdinand Schmidt problem, in order that no wrong impression is created.

In my address, I have given a detailed representation of his controversial "opinion". You will find many literature sources by Mr. Schmidt - in the printed text of my address. I have analysed these papers according to criteria in common use in the Western World, and have not found any convincing facts, arguments or plausible hypotheses supporting any probable health hazards from passive smoking. As a matter of fact, I understood that my objective in this address was an analysis of the relevant world literature, and to obtain a scientifically valid assessment from it. For this purpose, I have examined approximately 180 scientific papers. If any serious facts and theories in favour of a health hazard from common passive smoking had appeared anywhere, I would certainly have reported on them. The total volume of papers inspected included the latest W.H.O. report of 1975, the result of the Third World Conference on smoking and health, New York, 1975, and excellent papers from the 1974 Bermuda Symposium, which are amongst the most significant documents dealing with passive smoking.

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Mr. Schmatz has previously referred to a pointed contrary opinion; this would be the most widespread of Professor Schmidt's contrary opinions; I have referred to it in my address. I cannot say anything else in this respect; if there were anything else, I would most certainly have mentioned it. Obviously, contrary opinions in the political arena are not treated in the same way as in scientific circles.

A. Wischnath:

I believe that I owe Mr. Esser a reply.

I considered the invitation to this place a personal one, just as a fortnight ago in Switzerland, and now present a personal opinion based on my personal experiences. As a colleague, you will be interested to know that I prepare cases in the same way as I prove them. When the opposing side argues through health hazards, I also quote Prof. Schmidt. One must not conclude from the existence of diverging opinion, i.e. a medical dispute, that the non-smoker can be burdened with the risk of this dispute.

W. Mummenhof:

I would like to, yet again, refer briefly to the concept of not being able to exclude certain matters.

I think that this concept is often wrongly interpreted. Since it is logical that any empirical generalisation cannot be conclusively verified, we must not exclude anything here. Hence one cannot do much with the statement "it cannot be excluded".. In fact, in jurisprudence a pure possibility is never sufficient, neither for the judge nor for the legislator. A purely theoretical possibility is no reason to undertake any steps. More must be available. This "more" is "proof" in the sense of serious empirical assessments. The hypothesis of the health hazard from passive smoking must first stand up to this assessment, before one is able to work and set up regulations with it. A mere not-being-able-to exclude will never suffice.

G. Hall:

We should forget about personalities and return to the theme.

The somewhat disappointing result of this conference is the fact that the grey region between legal and medical experts, where they shift the blame from one to the other, has unfortunately not been narrowed. In my opinion, the reason is the non-clarification of the term "nuisance". For example, what can one do with an utterance by Scholz that "a factual nuisance is never a factual violation of rights"?

Can one really base arguments on that? It is possible that precisely the extent of the nuisance and the frequently considerable rudeness of

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persons causing the nuisance have caused the afflicted person to clutch at the nuisance concept as at a straw; and because of this he is now accused of being ignorant. But should we not, for once, push the frequently significant nuisance more to the foreground!! I had hoped that this conference would accomplish just that.

Indeed, inflamed eyes, sore throats, nausea, headaches, heartburn are all reactions which cannot simply be glossed over. For example, we would remove a man working with solvents, who complains about such irritations, from his workplace; the danger that these may become significant is always present in such a situation. Nothing is changed when we call them psycho-vegatative; stubborn disorders leading to "significant sicknesses" are still likely to occur. Should we not define these terms more accurately? My question to both lawyers and doctors: What value would you put on these vegatative reactions; how would you assess them as a sickness?

W. Klosterkoetter:

I think that the result of this conference is not quite as meagre as you say. From the medical side - in fact, through Mr. Schlipkoeter and myself - the following was offered to the lawyers.

- Health impairment, i.e. hazards, are not proven according to present knowledge

- irritations occur with strong exposure to smoke; these may represent a significant nuisance

- depending on location, a sensation of "stale air" may be generated below the irritation threshold; this may lead to trivial nuisance

Owing to some brilliant Swiss investigations and experiments in other countries, it is possible to quantify the extent of irritations and trivial nuisances in principle. Thus one can state: if a certain number of cigarettes are smoked, within a certain time, in a certain volume of air with an air exchange rate of approximately known magnitude then a threshold for irritation effects is not reached; a significant nuisance is then, in my opinion, not caused. One may also - as our Swiss colleagues have done - combine suitable types of social science questionnaires with measurements of certain constituents of tobacco smoke, and with a count of cigarettes smoked per unit time, in order to determine the trivial nuisance-threshold. It is not necessary to do this for every workroom. If one knows - from a model as it were - the relationship between smoke emission, air space, air exchange rate and irritation or nuisance effects, then one can in principle, apply these to other rooms and other conditions. Thus quantitative methods are available from the areas of medicine and atmospheric health; the

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basic principles have been established to a large extent. There are environments where smokers cause insignificant, and others where they cause considerable, irritation. According to my understanding of the law in our country it should not be possible for lawyers to simply overlook these factual findings.

D. Masteit:

I am also not satisfied by the result because probably one day I will be faced with the problem of deciding on a course of action in my capacity as a legislator. What is the situation when one presupposes - and according to what the medical experts here have said, one apparently must do this - that health hazards do not occur unless quite extreme conditions prevail, e.g. when no ventilation is possible at the workplace or when too many smokers are present in one room! Thus how could it be established in a manner comprehensible to a legislator, that no health hazard will occur here and today, in a room of this size and occupancy?

I would like to ask: What about environmental protection? The legislator has proclaimed that exhaust gases must be filtered. In this context, in fact, has not a determination been made which enables one to state in a particular case - for example, a policeman on point duty at an intersection for one hour daily, extending over many days in a year - that a health hazard is unavoidable; while he could live in a different locality, 500 metres away, for twenty years, without any ill effects? Should it not have been the duty of a legislator to proclaim a rule which provides protection in any locality, rather than one which was created only for an extreme situation and which has forced all drivers to ensure that exhaust gases are free of harmful substances? Hence in what position do we find ourselves now? If I have understood correctly, the lawyers stated that there cannot be a ready-made rule, because standards will be different at every individual workplace. In this way we avoid making any legal rule and leave it to the employer to proclaim that smoking is permitted in one room and not in the other. Is that right?

F. Watermann:

I think one can be disappointed with the result of this seminar only if one had hoped for a clear solution. If one distinguishes more carefully between the problems, then their solution will be more difficult.

Mr. Klosterkoetter earlier produced a diagram from the medical aspect, which shows a gradation of possible effects ranging from hazard to irritation. This scientific statement is the object of a legal assessment. This means that an analogous diagram, from the legal aspect, could be established for possible legal reactions. This legal diagram - figuratively speaking - would then have to be superimposed on the medical one. This would yield definite common points and certain grey areas. In the area of these definite common points,

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legal solutions would then not be a problem. In the grey area, possible legal reactions would have to be differentially matched to possible medical effects, which themselves are of variable strength. The scale of legal possibilities extends from an obligation to proclaim preventive legal measures for acute hazards, to the possibility of legal intervention, where the possibility of impairment can be identified and established with sufficient probability.

From the legal viewpoint, a grey area begins beyond this boundary; this area can no longer be delineated by generalised legal measures.

In this area, possible legal reactions must be individually adapted to the strength of the effect.

A possible regulation could be based on an expert weighting of individual interests, which takes the actual situation into account. A functional aspect enters the assessment here. A smoking ban in swimming pools and gymnasia is obviously easily justified from the special function of such facilities. Thus the place of activity must be included in the range of assessment when considering what has to be done.

Possible individual hazards which require obligatory legal measures from the aspect of general legal norms, can also exist in this sector. Ultimately, this is the reason why a policeman very exposed to dangerous exhaust gases at an intersection is relieved sooner than a colleague at a workplace where there is no danger. Legal norms to be considered here for particular rulings may have aspects of occupational health or accident prevention. They may also be based on the employer's obligation to provide protection. At this point, it is unavoidable that a component of civil service or labour law comes into consideration; on the one hand, this manifests itself in the right of the employer to give directions, and on the other hand, in the application of industrial co-operation and co-determination.

I am sorry that I cannot offer a clear solution for the control of this complex matter. I merely tried, through my remarks, to point out the medical and legal difficulties and their interrelationship, in order to indicate what possible legal effects exist.

I believe, however, that we should not imagine that some problem is solved satisfactorily if it is merely regulated by law.

K. Holl:

Taking the more optimistic view, I would like to add something to what the previous speaker has said insofar as I firstly would like to thank you, on behalf of my department, for an excellent presentation of the present state of medical knowledge. But I am also particularly pleased

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that the latest, most recent investigations, particularly those from Switzerland and by Professor Schlipkoeter, have indicated new ways of verifying effects that may show up in a non-smoker. Nevertheless I take the opportunity to point out that the problem of passive smoking is, generally speaking, principally confined to the office sector. This scales matters down somewhat, at least inasmuch as we are repeatedly contacted by the public on this subject.

I agree fully with what the Assistant Secretary of State, Mr. Schmatz, has said with regard to the lack of tolerance or mutual co-operation. But as regards encroaching on the rights of non-smokers I would like to say that I know of cases where a non-smoker was accused of disturbing the peace when he tried in a polite but definite manner to arrive at a solution. Even a doctor must be moved somewhat by the fact that people have lost their jobs, so that not only the non-smoker but also his family were subjected to real hardship. Now perhaps one could, as was implied already, become a follower of nihilism. What is going to happen now? On behalf of the federal government I am able to say - Mr. Klosterkoetter has given a hint already - that we have asked the Federal Health Council for a statement; Prof. Klosterkoetter has played a decisive part here; with your permission, may I summarise the contents briefly:

> Tobacco smoke leads to significant air pollution; special demands are made as a consequence of an increased awareness of the environment; many non-smokers feel genuinely distressed by involuntary inhalation. Inhaling tobacco in higher concentrations, e.g. as a consequence of a discrepancy between smoke generation rate per unit of time, room size and ventilation conditions, or because of insufficient distance between smoker and non-smoker, leads to many irritating effects and hence, to a considerable disturbance of well-being, possibly even to health impairment. A significant portion of the general population, mainly children who are particularly sensitive, are exposed to tobacco smoke. Special circumstances such as illness, convalescence, recuperation, pregnancy, etc. also lead to special situations which we have to cater for.

The Federal Health Council has thus recommended an improvement in the protection of non-smokers from involuntary exposure to tobacco smoke by various appropriate measures. In this respect, I repeat once again what Mr. Schmatz has hinted at before: State and federal governments have so far always refused to proclaim legal bans, particularly at the workplace. On the other hand, the concept of tolerance is relevant here, and you may perhaps also know that my department has gone to great lengths in order to encourage tolerance. Unfortunately, this did not have the desired effect. It is for this reason that the legislator has decided to ask for the establishment of a non-smoker-protection program, in the course of ratifying the law relating to foodstuffs.

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This is now done on a statement basis. Both federal and state governments will implement this non-smoker-protection program no later than May of this year; the workplace is part of the problem, albeit an important one. It will, however, be stated in this program that one should try to exploit the workplace regulation as far as possible to provide protection for the non-smoker. Naturally, this will be left to individual authorities. We shall have to wait and see how this will work out.

W. Mummenhof:

Regarding the determination of the significance threshold I would like to add that due to the nature of things, fixed values cannot ever be expected. One cannot demand quantitative results as in the biological determination of fatherhood or blood alcohol content. This is simply not possible, because "significance" is a normative concept. This concept should not only include the irritation threshold, which is medically determinable, but also the tolerance limit, social relevance and convention.

D. Merten:

Significance is certainly an indeterminate legal concept. Interpretative difficulties can, however, be overcome when limiting values are specified; this has been done in a similar manner in, e.g. laws relating to protection of the environment. A significant nuisance would exist if these limits were exceeded. Anything below the limit could not be considered significant. We have been told that a quantification is possible. We can measure cigarette smoke per unit of time, air pollution and the amount of harmful substances. I do not view the problem as a legal or medical one, but as a practical-technical one. Measuring instruments which indicate that the limits have been exceeded, would have to be available in every room. Whatever constitutes a trivial nuisance, will then become a significant one.

C.H. Ule:

I have understood Mr. Klosterkoetter quite differently. In my opinion he has tried to leap, so to speak, from the quantitative to the qualitative. In fact, he has said that an objective prevailing nuisance is a significant nuisance when a certain percentage of participants in this room considers it to be such; now this gives no information on the quality and severity of the nuisance. In police law, etc. lawyers assume that a nuisance is significant when it has reached a certain stage. But in a certain sense I also agree with this train of thought, because the subjective sensation plays an important role when we talk about a nuisance. We can say that if only one or two persons feel this way, then they are probably excessively sensitive. If, on the other hand, 50% feel irritated, then this is an indication that a significant nuisance

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exists. Naturally, your method would have unimaginable consequences if non-smoker agitation were to continue and a smoke detection device were to be found in every conference room, where a red lamp lights up as soon as the smoke saturation has become such that it would, in your view, represent a significant nuisance.

D. Merten:

The problem of sensitivity arises in other sectors of law, too. In these sectors, individual sensitivity or the sensitivity of a group of people, is once again not the deciding factor. Actually, one tries to establish reference values. Those irritative effects, e.g. noise, that exceed such values need not be tolerated; but emissions below these values must be accepted, even if one or two individuals have a noise sensitivity greater than average. The same applies to passive smoking; it is not relevant that passive smoking is irritating to one or more oversensitive persons. The problem has to be viewed objectively; it cannot be left to a majority decision, and has nothing at all to do with democracy. If the need arises, it should be established at what stage a nuisance becomes significant, and measurements should be technically possible.

W. Klosterkoetter:

I have to concern myself with noise rather frequently; irritation from noise is a good example. As you know, there are various characteristic values for emissions which apply to construction zones; they depend on the actual use of these zones. Even at characteristic values for purely residential areas, i.e. 50dB(A)/day and 35dB(A)night - 5 to 10% of residents still feel strongly irritated. All past studies have shown conclusively that about 10% always feel strongly irritated, irrespective of how low the sound level is. Within the noise protection range of the law relating to aircraft noise, there is a considerable percentage of dwellers who feel considerably irritated by noise. And when, following the federal law for protection from emissions, regulations for road and rail noise will be proclaimed in the near future, then you will find that even below the characteristic values stipulated there, a considerable percentage of dwellers will feel strongly irritated by noise. It will not be possible to create or decree an environment entirely free of irritations under present-day conditions of co-existence.

The best starting points for minimising irritations from passive smoking are probably those irritative effects which depend on concentration. From the Swiss investigations, quantitative data are available for this purpose. When one is dealing with the trivial nuisance caused by so-called stale air, i.e. with nuisances caused by odorous substances, then one penetrates far into the area of personal sensitivity. It is probably necessary to fall back on the person of average sensitivity in this case, e.g. on the experience that less than x, y or z percent of people will feel irritated below a certain level of smoke pollution. One could

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agree on what percentage corresponds to the "person of average sensitivity". This is not identical to a vote on whether e.g. smoking is permitted at a conference or not. Furthermore, we are not discussing whether perhaps an individual - e.g. a convinced opponent of smoking - can, through his veto, prevent a larger group of people from smoking, e.g. in a well ventilated large office.

Smokers are often told that the principle of the avoidable nuisance is always valid, and since smoking need not be practiced at all, an avoidable nuisance would then not eventuate. I do not hold quite as simplistic a view. Smoking was introduced 400 years ago in to the pleasure culture of the Western world; cigarette smoking about 100 years ago. There are very many smokers who started smoking in imitation of examples within their own society with a clear conscience, e.g. their own fathers, fellow pupils, friends, etc. Nevertheless, anti-smoker societies existed even 100 years ago; in fact, even an international society of this type was founded at Dresden in 1914. Thus we are dealing with a type of behaviour which is part of society and which - for most of the current smokers - was developed at a time when the problems of passive smoking did not, or at least not in such an acute form, exist. Only within the framework of the health debate, and under the weight of epidemiological data on health disorders in smokers, the question of whether dangers exist for the passive smoker too, has become acute. It is clear that if such dangers were evident or likely, appropriate steps would have to be taken. But they are not evident, and not to be expected with relevant probability. In such a situation, we as doctors can do nothing else but carefully examine facts, and examine the international literature continuously; when something has been established or appears suspicious, we must say so and warn people. Were such facts evident, we would have clearly said so in the statement of the Federal Health Council.

The smoking habit is quite deeply ingrained in most smokers. Unreasonable or inappropriate smoking bans would thus represent a strong intervention in one's freedom of action; against this, the rights of others must be appropriately weighted. However, it is not possible to offer 100% protection to people living and working together.

K. Holl:

I thank Professor Klosterkoetter for the information relating to the regulation concerning protection from road noise. In fact, this will be the test case for the degree of seriousness with which environmental protection is undertaken, and how we are going to cope with it. However, the non-smoker question is also important. I agree fully that we should consider the problem objectively, and according to what we have heard, we can do so in future. But I would like to advise against the idea of leaving it to the non-smoker to supply proof himself or to instal

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measuring equipment, etc.

F. Deich:

Just one remark regarding a curious event! Professor Valentin, you have made statements regarding the personality of Prof. Ferdinand Schmidt.

H. Valentin:

Not in regard to his personality, but his procedures.

F. Deich:

I have also had some curious experience with him. I merely want to say that he is not alone in pronouncing that passive smoking is dangerous. The curious experience happened in 1974 in the Lower House of Parliament. A short question had been put by M.P.'s Vogt, Dr. Bluem, Breidback, etc. regarding the effects of cigarette smoking. This led to a reply from the federal government; let me read out the section on passive smoking:

> Although there are, at this stage, only extremely unsatisfactory data regarding the actual hazard to the non-smoker from passive smoking, the analogous conclusion must be admitted that this hazard really exists.
>
> The federal govenmment does not have to presuppose an abstract concept of "hazard". A concrete hazard can be considered as given. It would be irresponsible to wait until a "bag" of sick, incapacitated and dead people can be produced, all of whom are victims of passive smoking.

This passage originates from Mrs. Focke, not from Ferdinand Schmidt. I am sure that it is greatly exaggerated, this opinion of passive smoking. Nevertheless I would like to ask, since Mrs. Focke is no longer available, the representative from her ministry, whether they still stand by it or whether they would rather have it deleted.

K. Holl:

I would like to say in regard to this matter that we are now living in 1977. I have said previously that we mainly lean on the statement of the Federal Health Council, and on recent scientific literature, and I have already shown what happens there. I think that living down the past is now no longer quite so important.

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E. Meyn:

I do not want to leave a statement of Mr. Schmatz unanswered. I have made a note that §5 of the workplace regulation could not be used for the protection of the non-smoker. In fact, I am very much of the opinion that in the event of a significant nuisance, §5 of the workplace regulation may indeed be fulfilled. But I assume that further developments in jurisprudence may prove me right.

Furthermore, I would like to make a general remark regarding the concept of tolerance. I am of the opinion that the non-smoker's tolerance is invoked far too often; one should also appeal to the tolerance of smokers. To me, a smoking ban of one or two hours during a conference appears quite acceptable.

W. Heitzer:

I have listened very attentively to this conference, because I will certainly be one of those who will have to come to a conclusion in situations where, e.g. a worker's representative approaches me in my capacity as a trade union official with the question of whether smoking can be prohibited at his factory by a workers' agreement, because other workers feel that they are molested. However, on summarising the result of this conference, I find that I am unable to make a recommendation. I cannot tell him that he may or may not, should or should not, do this or that.

I think that at present, after everything has been presented scientifically and legally from both the "Pro" and "Contra" aspect, the only way to solve the problem is by mutual understanding. For this reason I would like to ask that all those who write on this topic in the relevant special periodicals stress much more the desirability of better mutual understanding. Surely, it is not so much a problem of manufacturing industry, but more one of the administrative sector. Things are different in industry. There we have very many smoking bans at work places. Furthermore, different atmospheric and environmental circumstances prevail, and quite different and more severe hazards exist, as a rule, for industrial employees.

However, it appears to me that our discussion is of great significance in one area, and this was expressed on two or three occasions. Indeed, if several unfavourable circumstances are multiplied together, then this is the point where it is sensible to say yes or no, or at which it is appropriate to say that the limit has not yet been reached. In this respect, the Workplace Regulation should be considered seriously; an examination of same should be made before we say that a nuisance is present, whether the employee is really placed in a job which satisfies the Workplace Regulation in respect of air volume, air change, etc. Many problems are created simply because conditions at the workplace make it impossible to realise the conceptions on which the law is based

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or because the prerequisites are not fulfilled at all.

The Upper Bavarian Insurance Office has constructed a new administration building at Munich; this is one of the largest buildings, a fully air conditioned office, and I have the honour of holding the rotating chairmanship of the board. The question raised above no longer posed any problems, as soon as we moved into this building with a staff of at least 1500 people. In the old building with conventional offices, we always had arguments. Thus one is not merely concerned with passive smoking alone, but much depends on the circumstances under which it takes place. All our scientific conditions are extreme conditions; one attempts to establish certain values as a level. But in fact one should draw conclusions and use knowledge thus gained in workplace regulations, and in the design of workplaces.

I presume that all of you here work in your individual office; I can hardly imagine that any of you work in a large general office. When you are forced to work in one of these, the question does not arise scientifically but purely as a person-to-person relationship, and this converts it to a question of tolerance. And I ask you to give prominence to this tolerance in all future discussions (applause).

H. Valentin:

Time is moving on. Does anybody else wish to speak?

J.H. Kaiser:

Primarily to say thank you, Mr. President. It is one of the advantages of this beautiful city, that we were able to discuss here, under the auspices of the Free State of Bavaria within the Bavarian Academy for Industrial and Social Medicine, the medical and legal aspects of passive smoking; we did so under your chairmanship and with complete freedom and objectivity, and the style of discussion was such that this objective and independent dialogue was always assured.

At this hour when lunch is about to be taken, I shall obviously not attempt to make another summary; in any case, I have already had some chance to summarise several points this morning under the glaring light of television cameras. I was not surprised that some harsh words did occasionally enter the dialogue; perhaps they are part of a realistic picture. But I want to contradict one conclusion: I find that the grey zone which may have existed between doctors and lawyers, has been considerably narrowed, if not removed. There is a difference in the state of opinion before and after this conference. I think that before - and here I differ somewhat from Mr. Schmatz - a certain enthusiasm for regulations was evident in several administrative offices, and an eagerness to make a number of decisions, which were subsequently made public, existed on the legal side. This is certainly in opposition to what may well be considered the current state of medical research after this conference; in my opinion - which I have justified before - it must certainly be considered as such. Prior to our conference, the basic

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situation was, indeed, characterised by an occasional gap in the assessments from the medical and legal aspect. In contrast, the lawyers have now been able to learn several things from the doctors. If I may be permitted to make this summarising statement for my legal colleagues, then we must admit that we - I hope I can explain this properly: I not only include the addresses but also the discussions here - no longer pursue the argument evident in publicised decisions, as far as these are based on demonstrable health hazards.

I now turn to the legislator from Berlin. You have asked: What is going to happen now?; I am pleased and obliged to do so. With your permission, I would like to reply to this question. In doing so, I employ the experience of another legislator with regard to the Workers' Council. The latter is also a legislator in the widest sense, inasmuch as it proclaims regulations. I am completely in agreement with the opinion expressed on this side, namely that such a council can establish much better regulations than a general legislator under the prevailing conditions and the concrete situation existing within a factory. Thus, may I firstly reply to the proper legislator with the urgent warning to beware of perfectionism. The lawyer should exercise discretion but the legislator, if you permit me to say so, should do so to an increased degree; because he has the tools to proclaim bans and rules to the public. These tools must be applied with caution and moderation. I think that individual cases do not justify the degree of intervention that some people want.

I want to take up a remark by Mr. Klosterkoetter; he said that many current smokers have started to smoke under the influence of different ideals which are no longer important today. I see this in relation to a remark made by President Fuellgraf: Every society allows certain poisons for human consumption and penalises others. I gather from his remark and others made during the discussion, that there is no evidence whatsoever for the present delineation between "permissible" and "not permissible". Marihuana was mentioned as an example. There would certainly be some reservations against the licencing of further poisons, both socially and legally. However, from the remarks by Mr. Klosterkoetter and Mr. Fuellgraf I can extract the medical and, further to this, the legal obligation on the legislator for moderation when he intervenes.

Mr. Schmatz has talked about the Swedish model. I hope that every German legislator is frightened by it. The Swedish model has lost much of its appeal even with the original advocates with similar ideas. I am all for education, even when administered by legislators; after all, universities are educational institutions, too. But, if I may say so, it is inappropriate that some administrators misuse the instruments of public powers bestowed on them for such a questionable restriction of democratic sovereignty, and for price increases which are not based on costs, thus

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spoiling the pleasure of smoking for some people. Furthermore, I think we should also consider whether this would not imply an unpardonable lowering of well-being and standards of life; we should avoid such actions, particularly since they appear only to worsen the situation.

May I, Mr. President, congratulate both the Academy and yourself on the significantly increased knowledge which this conference has yielded? In fact, jurisprudence is particularly indebted to medicine. The basic assumptions of practical government, of jurisdiction and perhaps of some particularly eager legislators of various kinds, will have to be reconsidered after this conference.

H. Valentin:

Professor Kaiser, I would like to thank you very sincerely for your friendly concluding words and thus return the compliment. May I thank you all for your endurance, for staying here half an hour longer; this applies particularly to those speakers who have described the problem to us.

I shall say it once more: The aim of the Bavarian Academy for Industrial and Social Medicine in conjunction with the Bavarian State Ministry for Labour and Social Order, was an analysis and reassessment. I hope that we have reached this aim, at least in some areas.

Thank you very much. I hope you will have a pleasant return journey.

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